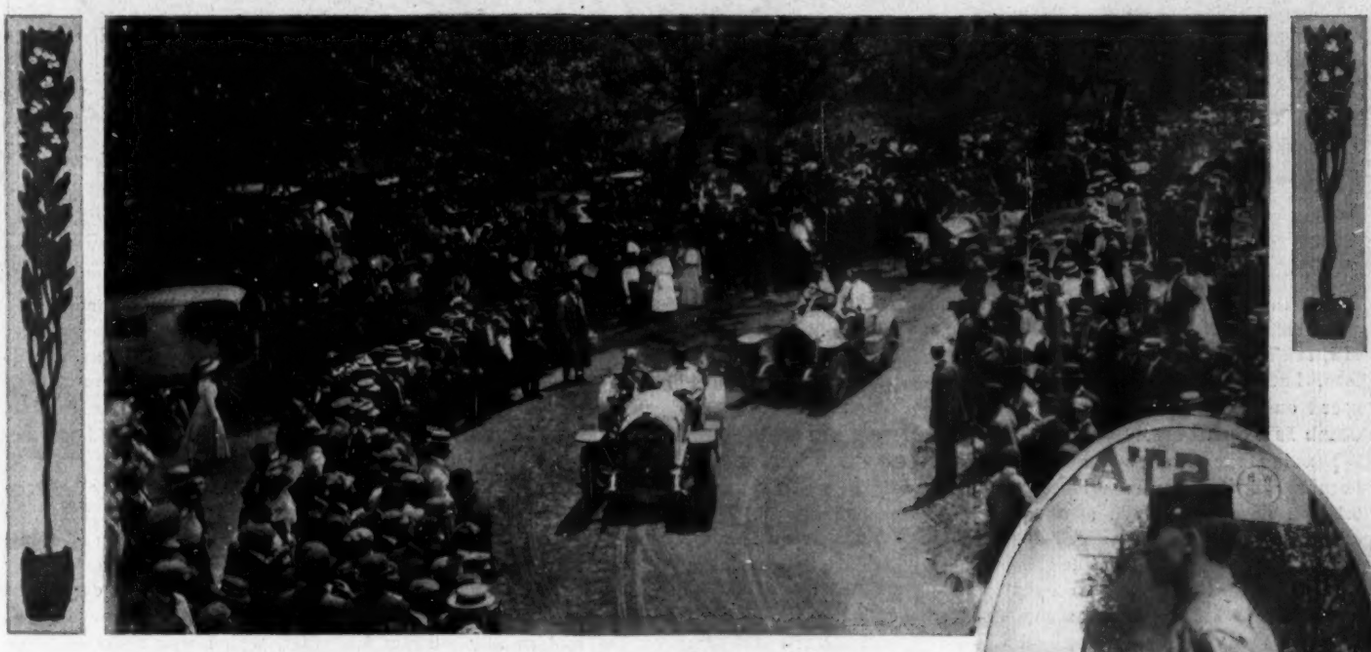
VOL. XV. No. 22 CHICAGO, JUNE 3, 1909 $3.00 PER YEAR

MOTOR AGE

RECORDS GO IN GIANT'S DESPAIR CLIMB



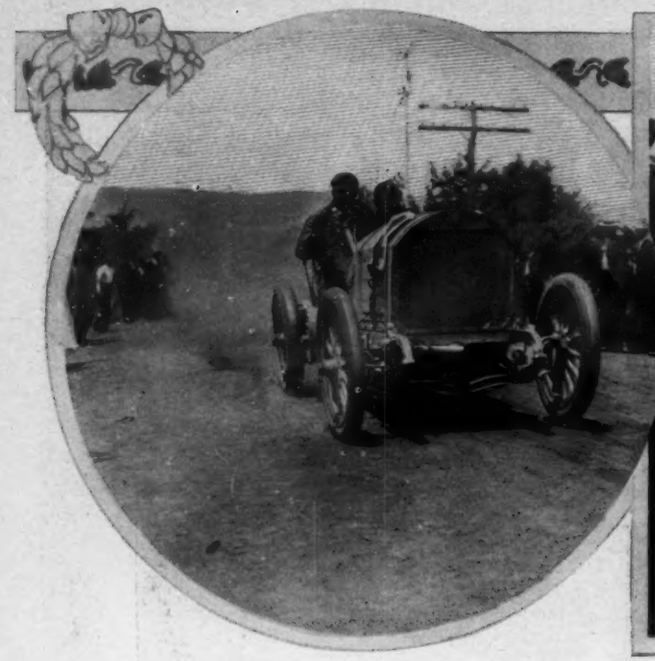
CARS COMING DOWN GIANT'S DESPAIR AFTER CLIMB

WILKES-BARRE, PA., May 31—To-day's onslaught on Giant's Despair hill by forty-five contestants who started in Wilkes-Barre's fourth annual hill climb has proven the greatest record-reducing contest of the season, no fewer than nine ascents being made in less than the Chadwick record of 1:41⅘ made last year. David Bruce Brown in the Benz grand prix racer carried off the speed honors, climbing the 5,700-foot hill up the side of Wilkes-Barre mountain in 1:31⅘, at 42.4 miles per hour, thereby clipping exactly 9⅘ seconds from the record.

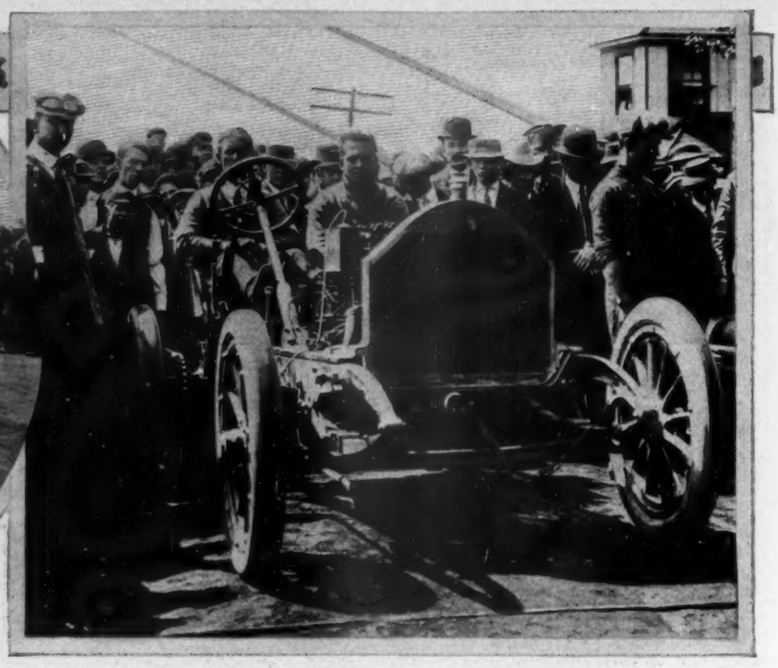
The Brown-Benz performance was not a surprise to hundreds of the spectators, because they had been watching the big machine in practice and it had been predicted that Brown would send it up the mountainside in less than 1:30. Brown, however, had been watching the other contestants in their practice work and apparently had concluded that it was useless to take any chances. From the spectacular point of view his ascent did not equal that of Larzelier in the Chadwick, de Palma in the Fiat or Denison in the Knox, all of the latter driving light cars which did not hold the course like the ponderous Benz

Winners of the Various Classes in the Annual Giant's Despair Climb at Wilkes-Barre, Pa.

Car and Driver	Time	1908 Record
Event 1—CARS UNDER $850		
Maxwell—See	2:38⅘	3:19⅘
EVENT 2—CARS $851 TO $1,250		
Buick—Chevrolet	2:34⅖	4:02⅘
EVENT 3—CARS $1,251 TO $2,000		
Oakland—Bauer	2:11⅘	2:45⅖
Knox—Belcher	1:57⅗	2:14⅘
EVENT 5—CARS $3,000 TO $4,000		
Stoddard—Miller	1:05⅕	2:17
EVENT 6—FOUR-CYLINDER CARS, $4,000 UP		
Simplex—Watson	1.48⅘	3:14⅖
EVENT 7—SIX-CYLINDER CARS, $3,000 UP		
National—Merz	1:48	1:52
EVENT 8—FREE-FOR-ALL		
Benz—Brown	1:31⅘ 1:41⅘	1:38⅘
EVENT 9—CHASSIS 451 TO 600 CUBIC INCHES		
Knox—Denison	1:40⅘	
EVENT 10—CHASSIS 451 TO 600 CUBIC INCHES—OVER 2,400 POUNDS		
Stoddard-Dayton—Wright	2:01	
EVENT 11—QUAKER CITY MOTOR CLUB CARS		
Knox Denison	1:40⅕	
EVENT 12—WILKES-BARRE CLUB CARS		
Knox—Johnson	2:21	
EVENT 13—INVITATION		
Chadwick—Larzelier	1:35⅘	



BENZ ON STRAIGHTAWAY AFTER START



DENISON IN KNOX WAITING TO START

and skidded terrifically on the turns, whereas the Benz simply rolled up the hill, taking the curves without skidding an iota, but showing phenomenal bursts of speed on the stretches.

Climb Is a Speed Duel

Leaving the Benz out of the contest, because of its enormous motor with its 6.1-inch bore and 8-inch stroke, the hill-climb was a phenomenal speed duel among the Chadwick, Fiat and Knox cars. The Chadwick, in the invitation event, made the ascent in 1:35⅘, or 5⅗ seconds better than its last year's record, which was unexpected because Driver Larzelier was only selected 2 days before the race, Len Zengle, who had tuned the car up and was expected to drive it, having broken the bones in his right hand. Ralph de Palma in the Fiat was a close rival of the Chadwick, his time being 1:36⅗. Close after him was Denison in the Knox with 1:38. All told this quartet of drivers made no fewer than nine ascents during the day, all beneath 1:41⅘, last year's mark. Not only were records broken with higher-powered cars, but all down the line seconds were cut from previous marks. Twenty-one cars went up in less than the 2-minute mark, whereas last year only six cars succeeded in putting up such a performance.

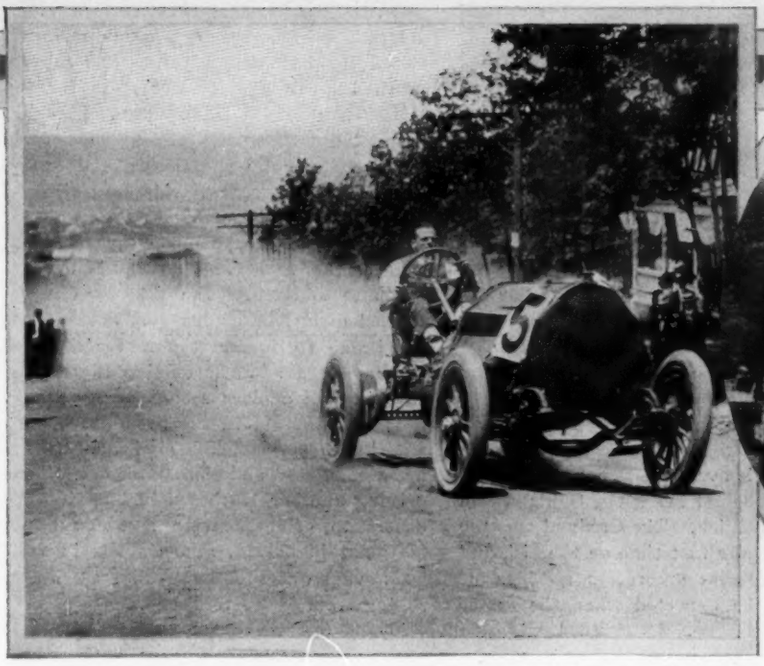
Course in Fine Shape

The phenomenal speed of the contest is good evidence of what can be done by increasing the powers of the cars without making the cylinders of the motors any larger. This year the winding course up the hill was in almost perfect shape. The enterprising Wilkes-Barre Automobile Club had expended no less than $1,500 on the course, oiling it on a good fraction of the distance, removing all of the water breakers and banking slightly the dangerous turn at the Devil's Elbow, as well as a right-angled turn beyond. Although the course appeared perfectly smooth, yet when the light cars went up at speeds ranging from 60 to 70 miles an hour, they bounded over the road from side to side, it often looking as if they would get beyond the control of the drivers.

The day was perfect. Scarcely had the first dawn of morn appeared than de Palma was at practice work on the hill and from that time until 8 o'clock many of the contestants who had not completed their preparations were trying the curves. From the start, which was made approximately at 9:40 until the finish at 3:15, the course was lined on both sides with Pennsylvanians. Conservatives placed the numbers at 65,000. Wilkes-Barreans were out in full force, and excursion trains from other parts of the state arrived every ½ hour laden with passengers.

So great was the crowd that the few

DE PALMA SKIDDING WIDE ON DEVIL'S ELBOW, GIANT'S DESPAIR



CHADWICK ON STRAIGHTAWAY JUST AFTER START

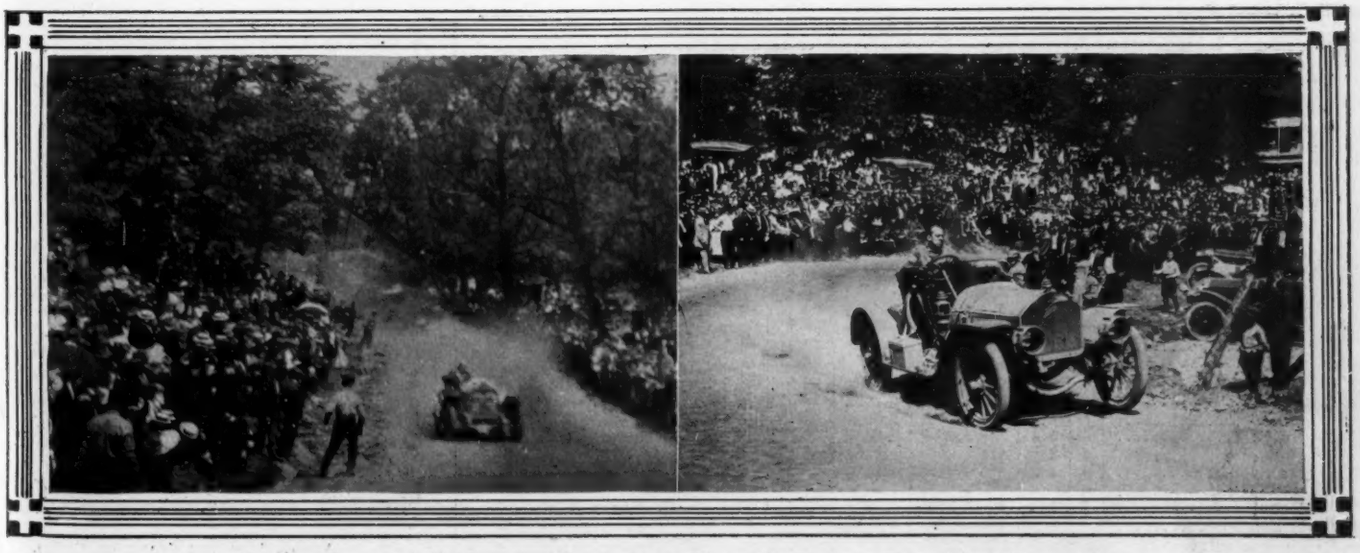
NATIONAL AT TURN BEFORE DEVIL'S ELBOW

state police, who had been commissioned to guard the course, in spite of their herculean efforts, proved entirely inadequate and continual calls were made for more men. The crowd was uncontrollable, it swarmed over all parts of the course, and would only open up and clear the road for the cars as they approached. As soon as a car passed the people swarmed over the road and walked higher up or moved downward. In spite of this absolute recklessness, only one person was injured, and that when Chevrolet's Buick upset in front of the grand stand, a boy suffering a severely sprained ankle. Close escapes, however, were numerous. De Palma's car ran over the foot of one man, when his left front tire exploded in the free-for-all, and the Berger Oldsmobile's right front fender brushed the coat of a foolhardy spectator. Had the course been kept clearer undoubtedly faster time would have been made by several of the contestants in the climb.

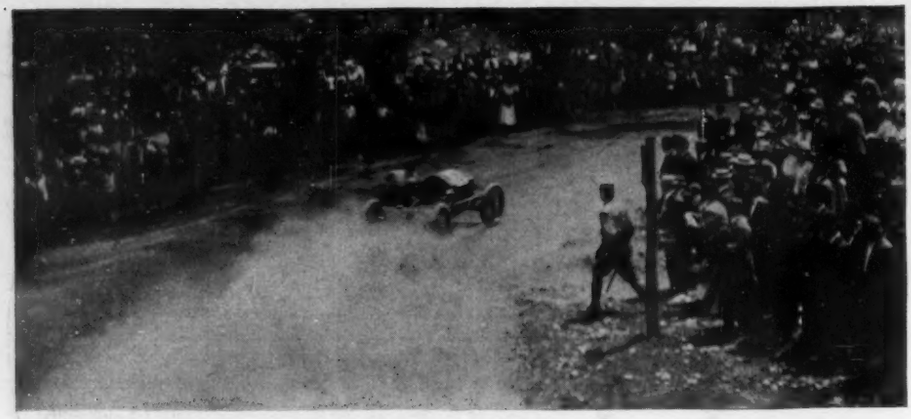
Honors were evenly divided among the several manufacturers who competed. Although Benz carried off the premier honor, Knox cars won four firsts, Stoddard-Daytons carried off a couple, and the Oakland, National and Chadwick were repaid by one each. In three of the scheduled events but one car started in each and in three others there were but two starters in each. The big interest of the day centered in the free-for all, the contest for the Hollenback trophy and the invitation race.

Description of the Course

Giant's Despair hill measures exactly 5,700 feet from start to finish and has an elevation in that distance of 666 feet. The course roughly divides itself into three divisions: First, practically a straightaway of 1,750 feet, ⅓ mile to the Devil's Elbow with a grade starting with 11 per cent and rising to 15 at one point. The second division starts with the Devil's Elbow and for 2,000 feet continues to where the grand stand is located. This is the division of curves, there being no fewer than four dangerous ones in this distance. First is the Devil's Elbow, to the right, followed 400 feet beyond by a right-angled turn to the left, and 800 feet above this comes the S turn at the mountain house, followed by the curve at the grand stand, 200 feet beyond. From the grand stand to the finish the course is a straightaway with grades as high as 22 per cent, but dropping to 10 per cent 200 yards before the finish. The entire course is a mountain-climb and not a hill-climb. The first division of the climb gives the drivers every opportunity for speed, the second tests driving ability and speed, as some of the curves are made on 18 per cent grades, and the third division is solely a test of speed and power, as it is a con-



MILLER'S STODDARD ON MOUNTAIN HOUSE S AND BELCHER'S KNOX IN HOLLENBECK TROPHY CLASS



FIAT SKIDDING WIDE ON MOUNTAIN HOUSE TURN

tinual wrestle with grades varying from 10 to 22 per cent for 2,000 feet, almost ½ mile. The story of the climb:

Event 1—This, the opening shot of the day barring the motor cycles, was a walkover for one of the new four-cylinder Maxwells, the event being open only to cars selling for $850 or less. Two of these machines were entered, but one was scratched this morning. The little machine averaged 24.5 miles an hour.

Event 2—This was a walkover for the Buick driven by Louis Chevrolet and was for cars selling from $851 to $1,250. The Mitchell entered was scratched. The Buick's pace averaged 25.1 miles per hour.

Event 3—Two contestants faced Starter Wagner in this event—for cars from $1,251 to $2,000—the first being the Oakland and the second a Buick. The Oakland was the first car to make fast time on the hill, and gave the reckless spectators an idea of what might be expected when the faster machines came up. It skidded wide on the corners, throwing clouds of dust over the crowds and averaging 29.4 miles per hour, its time being 2:11⅘. Its rival, the Buick, piloted by Chevrolet, was the only car to encounter an accident. Just above the mountain house on the S turn the car swung wide and when Chevrolet was bringing it around the left turn of the grand stand he cut the inner fence too close, the left front wheel catching a post, the car upsetting. Chevrolet was thrown clear.

Event 4—The lethargy which had pervaded the host of spectators was rapidly brushed away when the contest for the Hollenback trophy took place. Six cars completed the event. This trophy was won last year by the Corbin and unfortunately in the contest this car failed to finish. First honors went to Fred Belcher, driving a Knox, who made the ascent in 1:57⅜, the first car to drop below the 2-minute mark. As the time was megaphoned along the course volleys of cheering broke forth, and the real contest of the day began. Basle driving the Matheson six was a close second in 2 minutes flat; Carl Wright in the Stoddard-Dayton was but 3⅜ seconds behind him with a mark of 2:03⅞, and close after came Basle driving another Matheson in 2:04⅘. The others to compete were a four-cylinder National in 2:11⅕, and a Knox in 2:33. This event was open to gasoline stock cars selling from $2,000 to $3,000.

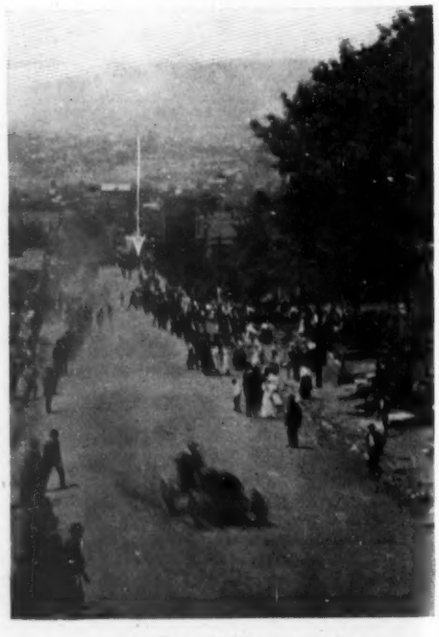
Event 5—This event brought the first victory to Stoddard-Dayton ranks, Bert Miller sending the new model up the incline in 1:50⅕, at a speed of 35.2 miles an hour. This was the first appearance of this new car in the east and its performance was watched with particular interest. Miller made a fast dash to the Devil's Elbow, and skidded wide on the turns. Second place went to the American roadster, the other entrant in the event, its figure being 2:10⅕, or a pace of 29.8 miles per hour.

Event 6—In this class for four-cylinder gasoline cars selling for over $4,000 William Watson in the 5¾-inch Simplex had a walkover at 1:48⅜, or close to 36 miles per hour. The American Traveler also entered in this event was scratched.

Event 7—A few days preceding the start it looked as if this event for six-cylinder cars listed at $3,000 or over would go with-

CHRONOLOGICAL TABLE OF THE WILKES-BARRE CLIMB

CAR	CYL.	BORE	STROKE	A.L.A.M. H.P.	TIME	M.P.H.	EVT.	DRIVER
Benz	4	6.1	8	59.5	1:31⅗	42.4	8	David Bruce Brown
Chadwick	6	5	6	60	1:35⅘	40.5	13	H. B. Larzelier
Chadwick	6	5	6	60	1:36	40.27	8	H. B. Larzelier
Fiat	4	5.5	5.1	48.4	1:36⅗	40.23	8	Ralph De Palma
Knox	4	5½	5½	48.4	1:38	39.6	8	Albert Denison
Knox	4	5½	5½	48.4	1:40⅕	38.7	11	Albert Denison
Fiat	4	5.5	5.1	48.4	1:40⅕	38.7	13	Ralph De Palma
Knox	4	5½	5½	48.4	1:40⅕	38.7	13	Albert Denison
Knox	4	5½	5½	48.4	1:40⅘	38.5	9	Albert Denison
National	6	5	5	60	1:45	37	8	Charles C. Merz
Stoddard	4	5¼	5¾	44.1	1:46⅖	36.5	8	Bert Miller
Simplex	4	5¾	5¾	52.9	1:47⅖	36.18	8	Wm. Watson
National	6	5	5	60	1:47⅜	36.11	9	Charles C. Merz
Stoddard	4	5¼	5¾	44.1	1:48	35.9	9	Bert Miller
National	6	5	5	60	1:48	35.9	7	Charles C. Merz
Simplex	4	5¾	5¾	52.9	1:48⅗	35.69	6	Wm. Watson
National	6	5	5	60	1:48⅘	35.6	13	Charles C. Merz
Stoddard	4	5¼	5¾	44.1	1:50⅕	35.2	5	Bert Miller
Corbin	4	4½	4¼	32.4	1:55⅖	33.6	13	J. Swan
Knox	4	4⅞	4¾	38.2	1:57⅜	33	4	Fred Belcher
Matheson	6	4½	5	48.6	1:58	32.9	13	C. L. Basle
Matheson	6	4½	5	48.6	2:00	32.38	4	C. L. Basle
Stoddard	4	4¾	5	36.1	2:01	32.1	10	Carl Wright
Oldsmobile	6	4¾	4¾	54.1	2:02⅗	31.6	11	Tom Berger
Stoddard	4	4¾	5	36.1	2:03⅜	31.4	4	Carl Wright
National	4	4⅜	4¾	30.6	2:03⅘	31.3	10	Charles C. Merz
Oldsmobile	6	4¾	4¾	54.1	2:04⅕	31.2	7	Tom Berger
Matheson	6	4¾	5	54.1	2:04⅘	31.1	4	C. L. Basle
American	4	5¼	5½	44.1	2:07⅗	30.4	11	
American	4	5¼	5½	44.1	2:10⅛	29.8	5	
Matheson	6	4½	4½	48.1	2:11	29.6	10	C. L. Basle
National	4	4¾	4¾	36.1	2:11⅕	29.7	4	Charles C. Merz
Oakland	4	4½	5	32.4	2:11⅘	29.4	3	Howard Bauer
Knox	4	4⅞	4¾	38.2	2:18	28.1	10	Fred Belcher
Knox	4	4⅜	4¾	30.6	2:21	27.5	12	Robert Johnson
Knox	4	4⅜	4¾	30.6	2:23⅘	27	10	Robert Johnson
Oldsmobile	4	4¾	4¾	36.1	2:26	26.6	12	Edward Hobblett
Knox	4	4⅞	4¾	38.2	2:26⅕	26.5	11	Fred Belcher
Knox	4	4⅜	4¾	30.6	2:33	25.4	4	Robert Johnson
Buick	4	3¾	3¾	22.5	2:34⅖	25.1	2	Louis Chevrolet
Buick	4	3¾	3¾	22.5	2:34⅖	25.1	12	Edward Wilkie
Maxwell	4	3¾	4	22.5	2:38⅕	24.5	1	Arthur See
Babcock electric					3:03	21.2	8	Fred Peck
Regal	4	4	4	25.6	3:18	19.6	12	W. C. Moore
Middleby	4	4	4	25.6	4:32⅖	14.2	12	E. Hume

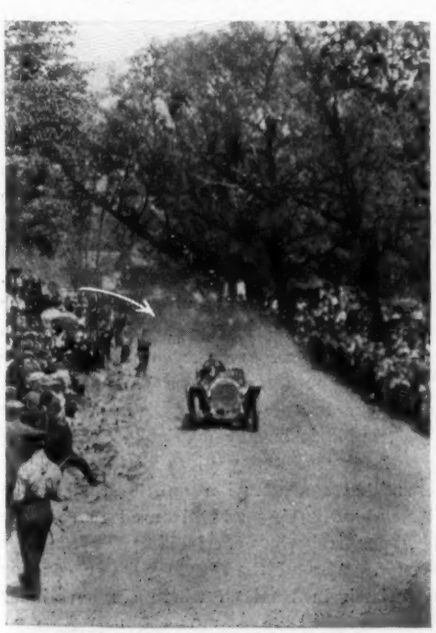


ARROW DENOTES START OF CLIMB

out entries, but two were secured—the 5-inch National and the 4¾-inch Oldsmobile. Charles C. Merz took the National up to victory in 1:48, the lowest mark up to this time in the contest, and showing an average speed of 35.9 miles per hour. Tom Berger in the Oldsmobile, with tonneau, made a mark of 2:04⅕.

Event 8—This event was the focus point of the entire day, the multitude of spectators knowing that no fewer than eight cars were waiting at the starting line for this free-for-all, which was to establish the records of the day and shatter all existing marks on the hill. Not a little novelty was added by the nomination of a Babcock electric which negotiated the distance in 3:03, averaging 21.2 miles per hour. Of the seven gasoline cars, all made the ascent at over 36 miles an hour. A Knox, piloted by Denison, was the first off. Denison had his orders to get all out of the car he could. In the little slope at the starting line he gained great headway and in 16 seconds was at the first turn, 1,200 feet beyond. Fortunately the crowd had backed off at the elbow, making the course clear. Denison cut the corner close, but skidded wide, the rear wheels almost taking the left ditch. At the mountain house S the car skidded in fan shape and, at the grand stand, the right rear wheel only missed the post by a short distance. From every point along the course came the telephone calls "going fast," and when the final announcement of 1:38, or 39.6 miles per hour was made, the crowd had its innings. From the top down to the starting line the forests of the mountainside reverberated with the cheering. Scarcely had it ceased when the megaphones rang out, "Benz coming," and the crowd breathlessly awaited what was previously looked upon as the record to be. In 15 seconds, or at a speed of over 70 miles an

(*Continued on page 13*)



JUST PAST MOUNTAIN HOUSE

S TURN FROM THE MOUNTAIN HOUSE TO GRAND STAND

CLASS STANDING OF CONTESTING CARS AT WILKES-BARRE

Name of Car	H. P.	Cyl. Bore	Piston Stroke	No. Cyl.	Entrsnt	Driver	Time
First Event—Stock Cars $850 and Under							
Maxwell	22.5	3¾	4		Maxwell-Briscoe Motor Co.	See	2:38 1-5
Second Event—Stock Cars $851 to $1250 Inclusive							
Buick	22.5	3¾	3¾		Buick Motor Co.	Chevrolet	2:34 2-5
Third Event—Stock Cars $1251 to $2000 Inclusive							
Oakland	32.4	4¼	5		Oakland Motor Car Co.	Bauer	2:11 4-5
Buick	25.6	4	4½		Buick Motor Co.	Chevrolet	Upset
Fourth Event—Stock Cars $2001 to $3000 Inclusive							
Knox	38.2	4⅞	4¾		Knox Automobile Co.	Belcher	1:57 3-5
Matheson	48.6	4½	5	6	Matheson Automobile Co.	Basle	2:00
Stoddard-Dayton	36.1	4¾	5	4	Dayton Motor Car Co.	Wright	2:03 3-5
Matheson	34.1	4¾	5	6	Matheson Automobile Co.	Basle	2:04 4-5
National	36.1	4¾	4¾	4	National Motor Vehicle Co.	Aitken	2:11 1-5
Knox	30.6	4⅞	4¾	4	Robert Johnson	Johnson	2:33
Fifth Event—Stock Cars $3001 to $4000 Inclusive							
Stoddard-Dayton	4 .1	5¼	5¾	4	Dayton Motor Car Co.	Miller	1:50 1-5
American Roadster	44.1	5¼	5½	4	L. G. Vagel	Willys	2:10 1-5
Sixth Event—Four-Cylinder Stock Cars $4000 and Over							
Simplex	52.9	5¾	5¾	4	Simplex Auto Co.	Watson	1:48 3-5
Seventh Event—Six-Cylinder Stock Cars $3000 and Over							
National	60	5	5	6	National Motor Vehicle Co.	Merz	1:48
Oldsmobile	54.1	4¾	4¾	6	Olds Motor Works	Beyer	2:04 1-5
Eighth Event—Free-for-All—All Cars and Types							
Benz	59.5	6.1	8	4	Jesse Froelick	Bruce-Brown	1:31 3-5
Chadwick	60		6	6	Le S. Chadwick	Larzeller	1:36
Fiat	48.4	5.5	5.1	4	Fiat Automobile Co.	DePalma	1:36 3-5
Knox	48.4	5½	5	4	Knox Automobile Co.	Denison	1:38
National	60	5	5	6	National Motor Vehicle Co.	Merz	1:45
Stoddard-Dayton	44.1	5¼	5¾	4	Dayton Motor Car Co.	Miller	1:46 2-5
Simplex	52.9	5¾	5¾	4	Simplex Auto Co.	Watson	1:47 2-5
Babcock Electric					Lewis G. Vogel	Peck	3:03
Ninth Event—Stock Chassis Piston Displacent 451 to 600 Cubic Inches							
Knox	48.4	5½	5½	4	Knox Auto Co.	Dennison	1:40 4-5
National	60	5	5	6	National Motor Vehicle Co.	Merz	1:47 3-5
Stoddard-Dayton	44.1	5¼	5¾	4	Dayton Motor Car Co.	Miller	1:48
Tenth Event—Stock Chassis 451 to 600 Cubic Inches, Minimum Weight 2400 Pounds							
Stoddard-Dayton	36.1	4¾	5	4	Dayton Motos Car Co.	Wright	2:01
National	30.6	4⅜	4¾	4	National Motor Vehicle Co.	Aitken	2:03 4-5
Matheson	48.1	4½	4½	6	Matheson Automobile Co.	Basle	2:11
Knox	38 2	4⅞	4¾	4	Knox Automobile Co.	Belcher	2:18
Knox	30 6	4⅜	4¾	4	Robert Johnson	Johnson	2:23 4-5
Eleventh Event—Cars Owned by Q. C. M. C. Members Only							
Knox	48.4	5½	5½	4	Knox Automobile Co.	Denison	1:40 1-5
Oldsmobile	54.1	4¾	4¾	6	W. T. Taylor	Beyer	2:02 3-5
American	44.1	5¼	5¼	4	L. G. Vogel		2:07 3-5
Knox	38 2	4⅞	4¾	4	Knox Automobile Co.	Belcher	2:26 1-5
Twelfth Event—Wilkes-Barre Automobile Club Only							
Knox	30.6	4⅜	4¾	4	Robert Johnson	Johnson	2:21
Oldsmobile	36.1	4¾	4¾	4	Wm. S. Lee	Habblett	2:26
Buick	22.5	3¾	3¾	4	C. D. Davis	Wilkie	2:34 2-5
Regal	25.6	4	4	4	W. C. Moore	Moore	3:18
Middleby	25.6	4	4	4	G. T. Van Kirk	Hume	4:32 2-5
Thirteenth Event—Invitation Free-for-All, Added							
Chadwick	60	5	6	6	Lee S. Chadwick	Larzeller	1:35 4-5
Knox	48.6	5½	5½	4	Knox Automobile Co.	Denison	1:40 1-5
Fiat	48.4	5.5	5.1	4	Fiat Auto Co.	De Palma	1:40 1-5
National	60	5	5	6	National Motor Vehicle Co.	Merz	1:48 4-5
Matheson	48.6	4½	5	6	Matheson Automobile Co	Basle	1:58
Corbin	32.4	4½	4¼	4	Corbin Motor Vehicle Co.	Swan	1:55 2-5

Published Weekly
The CLASS JOURNAL COMPANY
1200 Michigan Avenue
CHICAGO
New York Office, 239 West 39th Street

MOTOR AGE

Subscription Rates
United States and Mexico, per year, $3.00
Other countries including Canada, $5.00

Entered as Second-Class Matter September 19, 1899 at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Efficient Guarding of Courses

WITH the increased efficiency that is being gained each successive season by many manufacturers from their motors without actually increasing the bore or stroke; with the presence of some high-powered racing road locomotives that are now in our midst; and with the increase of the public's interest in hill-climbing events, it is now almost as imperative to keep the hills on which contests are held well guarded as it is to have the course of a road race efficiently patrolled. Three years ago few hill-climbs attracted large crowds; two years ago the fever was developing; last year it exhibited itself in amazing proportions; and this year at several of the events held so far the thousands of motoring-ignorant spectators have literally swarmed over the courses, to their own danger and greatly to the disadvantage of the contending cars.

WHEN hill-climbs were won at a speed not in excess of 30 miles per hour it did not matter much how clean the course was kept; in fact, the speed made was not of sufficient attraction to magnetize the big crowds; but now that many cars travel as high as 75 miles per hour on some parts of the course, and only slow down for dangerous curves and when the steepest parts are encountered, the efficient patrolling and guarding by police is imperative. The county or village constable has proven himself a failure on many occasions, and cannot be depended upon to maintain that discipline that is needed; he knows too many of the spectators and quite often fails to even warn his friends off the course. The state police were employed recently at Wilkes-Barre to guard the Giant's Despair mountain course, and although individually they are of the highest order, their numbers were too few. Recently in Tennessee state troops guarded the course on Lookout mountain; and in California the state militia has served on a couple of occasions. The great majority of the states are not so fortunate in securing troops, the government being averse to such use of them. This suggests the question, What are the legitimate duties of state troops? The generally-accepted idea of state troops is to protect in case of war and quell troubles when strikes or other serious labor exigencies arise. The public pays the salaries of these soldiers and clothes and maintains them, yet their services are constantly denied to a part of this public when the cause aids greatly in developing one of the greatest industrial developments of the present day.

THE sole aim of troops should not in these days of little war be solely a preparation for hostilities, but to give legitimate aid to industries that may demand such. When troops are called out to maintain order in case of strikes or race troubles, the major part of their duty lies in controlling the angered public, not so much with the bayonet and bullet as with acts of tact and diplomacy. What better experience for such work could be obtained than handling the good-natured mobs at a contest and thus demonstrating to the public that the soldier can be something besides an agent of death and torture; and that when wars are not he is of inestimable value in aiding industrial enterprises. It is not here suggested that state troop protection would be expected free; the motoring authorities would not look for such, but it is reasonable to look for the friendly assistance of this big branch of the country in return for the actual expenses connected therewith, which no organization would be otherwise than very glad to meet.

The Preservation of Roads

THE good road era has begun in many states, and already the steam roller, the piles of crushed rock along the roadside, and the digging out of the original roadway are familiar sights in many of the eastern states. The roads built are generally of approved macadam construction, which, completed, are perfect strips of white ribbon running through the green fields and hills of the rural sections. These roads are perfectly built, and as soon as completed the farmers and other rate payers contentedly sit back and exclaim, "Those roads are now good for a generation or more without trouble." This is a serious error and one being made in many states. That it is an error is borne out by the dust cloud raised by a passing car traveling at 20 miles per hour or perhaps faster. Many fail to realize that whenever dust is raised a road is being destroyed. This is particularly the case on smooth macadam surfaces where there is nothing to hold the dust on the road and where every cross wind blows off any loose material.

AS soon as roads are built, arrangements should be made to keep them in repair. With roads it is essentially "A stitch in time saves nine." Some dust preventative should be used immediately macadam roads are completed, in order to prevent dust. Oil, tar and many special preparations are now on the market, and the communities should be educated to looking upon these additions as a legitimate part of the road maintenance. California has its oiled roads over which motoring is a pleasure to the motorist and not a dust-bath to the citizen who happens to be on the road the same day, or who has the misfortune to reside along a well-traveled highway. Massachusetts proved last year that road treatments are a success and more economical than continuous applications of water; and in England dust-preventing is always considered a part of the road problem.

THE old cry of complexity in a four-cylinder motor has at last almost vanished; so far has it disappeared that now the buyer with less than $900 to expend wants a car not with a single or two-cylinder motor but one with four cylinders. So great has this demand become in the last couple of years that makers who heretofore placed everything on twin-cylinder machines found it imperative to bring out the four-cylinder type and to sell it at very little over the amount required for the two. The public has been watching four-cylinder machines perform for 5 consecutive years and has become accustomed to the type; and has learned to love it instead of reverting to the single-cylinder style which was predicted a few years ago would increase in popularity. Whether a four-cylinder gives more or less trouble than a two or a one is of little concern to many buyers today. What interests them most is the flexibility of the four and the continuous torque as compared with the intermittent work of the single cylinder. So strongly has the motor car become entrenched in the public mind that the question of trouble is largely overlooked, this being an acknowledgement that the car of today gives little trouble if given due care and shown due consideration on the road. The public knows this and instead of buying what it used to consider lesser of two evils is now positively buying, looking for the best that the money will procure. Abroad the single-cylinder car has received somewhat of a setback in England where single-cylinder taxicabs are not to be used any more in London service; two-cylinder machines are to receive the preference.

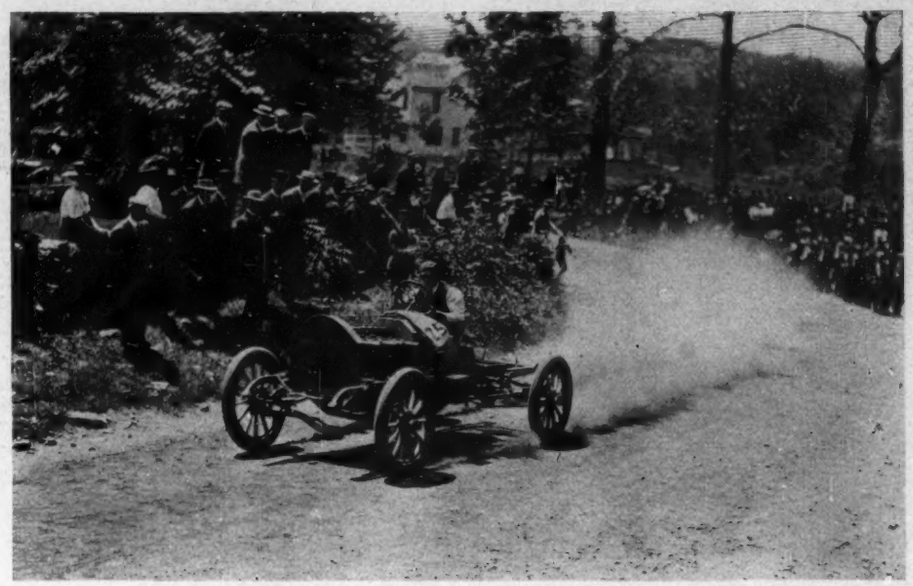
AMATEUR SMASHES RECORD ON SPORT HILL

BRIDGEPORT, CONN., May 31—The fourth annual hill-climb of the Automobile Club of Bridgeport was run over the Sport hill course in Easton this morning under a cloudless sky and with the course in excellent condition, it having been treated with oil before the contest. Never in the history of the club was such good sport afforded, but unfortunately the contest was declared off in the last half of the ninth event, the free-for-all. Etheridge, driving the Tyson Isotta, which established the course record of 1:17 a year ago, ran into the crowd on the S turn and severely injured six persons, five of whom sustained fractured limbs, and one a fractured skull and broken ribs. The last named is in a serious condition. It was simply a case of crowding too close to the course. It is assumed that the accident was due to a sprung wheel of the Isotta. It collided with a tree and then ran into the crowd. Etheridge remained at his post and his mechanic rolled to the ground unhurt.

Cameron in the Chalmers 40 sent the crowd wild in the event for runabouts by sfashing Poole's Isotta record of 1:17, making the mile stretch in 1:16⅘. Harry Tuttle was second best in the Stoddard in 1:23 flat. The class record established last season was made by Tuttle in the Stoddard-Dayton in 1:29, which time was bettered by four cars.

Event 6, for cars of $3,001 to $4,000, was a walkaway for the Allen-Kingston, in 1:18 flat. The Palmer & Singer was a slow second in 1:33⅘.

The Yankee Simplex, driven by Carl Brosel, made a beautiful run in the big car class in 1:16⅘, beating out Pepperday in the Isotta, which made the hill in 1:17 flat, the class record being 1:20 made by Poole in the Isotta last year. The 90-horsepower de Dietrich and the 60-horsepower Renault did not compete in this.



KNOX, ONE OF STARS AT BRIDGEPORT

In the following event, for amateur drivers, no price or power limitations, Webb in the 120-horsepower Panhard not only relegated the class record established last year to oblivion, but set a new mark of 1:09⅘. The short-wheelbased blue French flyer gained the crest of the hill with little noise and tore down the home stretch in a burst of speed the like of which never has before been witnessed on this course. It was a sight to witness. The monster flyer held the road as steady as a touring car at a 25-mile gait, making a beautiful turn and not once did Webb waver from the center of the course.

The free-for-all, as is usually the case, was the fastest of the day, omitting the time of the Panhard in class 8 for amateur drivers. Of the cars which were able to finish before the accident, Bourque had the event by a close margin, making the mile grade in 1:10⅕, followed by Coffey in the midget Columbia in the close time of 1:11⅕, causing some money to change hands. Lorimer in the Chalmers equalled the time of Poole a year ago in the hill record of 1:17 flat. His team mate, Cameron, however, went him a little better and did it in 1:15⅘, the six-cylinder Lozier apparently not at its best, followed in 1:22⅕. The Renault was a disappointment in this event, doing but 1:22⅘. This left the de Dietrich, Stoddard-Dayton, Isotta and the big Panhard to complete the event. Summaries:

GASOLINE CARS, $850 AND UNDER

Name of Car	H.P.	Driver	Time
Maxwell	20	Goldthwaite.	2:19 2-5
Maxwell	10	Barnes	4:51 4-5

$851 TO $1,250

Buick	18	Burman	1:30
E-M-F	30	Buckley	1:45 4-5
Overland	30	Aubey	1:58 4-5

$1,251 TO $2,000

Buick	30	Burman	1:20 1-5
Buick	30	Hammond	1:37
Chalmers-Detroit	24	Lorimer	1:53
Pullman	20	McMullen, Jr.	2:20 1-5

TOURING CARS, $2,001 TO $3,000

Chalmers-Detroit	40	Lorimer	1:20 2-5
Knox	38	Bourque	1:33 2-5

RUNABOUTS, $2,001 TO $3,000

Chalmers-Detroit	40	Cameron	1:16 2-5
Stoddard-Dayton	36	Tuttle	1:23
Tiley	30	Tiley	1:27 2-5
Columbia	29	Coffey	1:28 3-5
Knox	38	Bourque	1:30 3-5

CARS, $3,001 TO $4,000

Allen-Kingston	48	Hughes	1:18
Palmer & Singer	51	Singer	1:33 3-5

CARS, $4,001 AND OVER

Simplex	53	Broesel	1:16 3-5
Isotta	50	Pepperday	1:17

AMATEUR DRIVERS, GASOLINE CARS

Panhard	*120	Webb	*1:09 3-5
Simplex	53	Brosel	1:16
Chalmers-Detroit	40	Alden	1:17 1-5
Stearns	60	Doig	1:21 2-5
Stearns	60	McNeil	1:21 4-5
Tiley	30	Tiley	1:27 3-5

FREE FOR ALL

Knox	38	Bourque	1:01 1-5
Columbia	29	Coffey	1:11 1-5
Chalmers-Detroit	40	Lorimer	1:17
Chalmers-Detroit	40	Cameron	1:15 3-5
Lozier six	60	Cobe	1:22 1-5
Renault	60	Huttner	1:22 3-5
Isotta	50	Etheridge	‡
Ford	18	McNeil	‡

* New record. ‡ Did not finish.

CHALMERS-DETROIT, ONE OF THE CLASS WINNERS

TWENTY-TWO CARS IN FOR CHICAGO MEET

CHICAGO, June 1—Ten candidates for the Cobe cup contest and twelve for the light car race had been officially entered for the road racing carnival of the Chicago Automobile Club up to tonight, making a total of twenty-two nominations which probably will be increased one-third before the entries close next Saturday, the club being able to count several more prospectives which have been hanging off to the last minutes, among them being four Locomobiles—two for each race—two Fiats, two or thre Maxwells, two Fal-cars, a Thomas light six and a Johnson, the last named a Milwaukee car which is likely to be entered, it is said.

STRANG, BURMAN AND DEWITT

Three new nominations were made the latter part of last week and the first part of this. On Thursday Arthur W. Greiner, of Chicago, an amateur who shone with distinction at the last Algonquin hill-climb and who has been circuit-chasing in the south this spring, went to New York and while there fixed up a deal with Paul Lacroix whereby Greiner is to drive a Renault in the light car event. Greiner made the entry on Friday and expects to have the car here this week. On Saturday Edgar Apperson produced his second Apperson entry, making another 50-horsepower Jackrabbit, but not being able to declare his driver. He states he is looking around for a good man, but has not as yet settled upon his choice. The Corbin was entered today for the light car race. It is the same machine that competed at Wilkes-Barre Monday, a 30-horsepower car with a bore of 4½ inches and a stroke of 4¼ inches. In all probability Swan will drive it. Greiner made the trip to New York to negotiate for the Renault. He has been driving a Thomas big six on the southern circuit, but that car was too large for the Cobe cup, so Greiner, eager to try his hand at road racing, secured the Renault. This makes the entry list read as follows:

COBE CUP

Car	Driver
Buick	L. Strang
Buick	L. Chevrolet
Buick	R. Burman
Stoddard-Dayton	C. Englebeck
Stoddard-Dayton	B. Miller
Knox	A. Denison
Knox	W. Bourque
Apperson	H. Lytle
Apperson	Not named
Fiat	E. A. Hearne

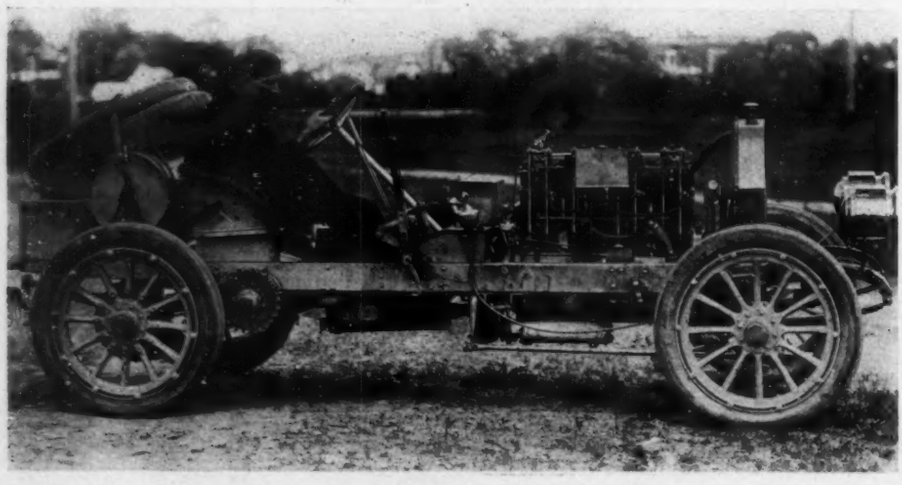
INDIANA TROPHY

Moon	P. Wells
Buick	L. Strang
Buick	G. DeWitt
Buick	R. Burman
Stoddard-Dayton	Not named
Stoddard-Dayton	H. Tuttle
Chalmers-Detroit	Not named
Chalmers-Detroit	Not named
Renault	A. W. Greiner
Marion	H. Stutz
Marion	A. Monsen
Corbin	Not named

During the week drivers were named for the two Knoxes and one of the little Stoddard-Daytons, the Knox people declaring that Denison and Bourque, their regular pilots, would carry their colors in the Cobe cup. The McDuffee Automobile Co., which has entered the four Stoddards, stated that Harry Tuttle will drive one of the little chaps in the light-car race. The other man has not been selected as yet. It is anticipated, too, that Robertson and Florida will be in the races, it being understood that they will be named by the Locomobile people, who expect to enter their cars the latter part of the week. The two Fiats expected will produce star pilots, one of whom will be de Palma. The Italian cars are expected Thursday in New York from the factory, and after their arrival they will be tested out on the Long Island motor parkway; then if they run in racing form the entries will be telegraphed to Chicago. The Thomas light six entry is almost certain. The car, of 1909 model, is being tried out on the road at Buffalo and it is said there is little doubt but what it will face the starter in the Cobe cup.

General Executive Trego has not as yet framed up his complete list of officials, although he has appointed a couple of them. Following the appointment of Asa Paine, of Minneapolis, as referee comes the choice of Charles P. Root, of Chicago, as clerk of the course.

E. A. HEARNE, ENTRANT OF FIAT



DENISON IN THE KNOX, COBE CUP CANDIDATE

Working on the Course.

Down at Crown Point all is activity. The road gangs are pushing along as fast as possible, although they have been somewhat delayed by wet weather. Still, they have been making noticeable progress and the east leg of the course is in pretty fair shape right now. The new stretch on the north leg is being rolled, while the west leg is in the hands of the workmen. The grand stand is going up like magic and it is expected it will be done long before the time specified in the contract.

Training camps are being secured on the

course, among the camps which have been signed up being the Locomobile, Apperson, Moon, Stoddard-Dayton, Fiat, Buick and Knox, while Michelin has picked out tire headquarters near the grand stand. Others, too, are located in the vicinity, although not all of them have announced their locations. The Locomobile people have stolen a march on their rivals by renting for 20 days the one garage in Crown Point, where they will keep its four cars.

The question of transporting the people to Crown Point seems to have been satisfactorily settled, for a third railroad has chipped in and offered its help, the Monon last week agreeing to put on the same kind of service as will the Erie and Pennsylvania. The Monon does not touch Crown Point, but runs along the western leg of the course. Therefore, it will carry its passengers to Creston and Lowell. Its service will start at midnight each night and run until 8 o'clock in the morning. In this manner it is calculated the three railroads will be able to handle 80,000 people a night.

The Crown Pointers are preparing to

LYTLE, AN APPERSON DRIVER

reap a golden harvest. Private grand stands and parking spaces are bobbing up on every hand, while the demand for accommodations makes it look certain the town will be overcrowded. Private families have gone into the hotel business for the time being and it looks now as if every house will care for from two to a dozen strangers.

Grand stand seats are going fast and it is believed that a week before the races everything will be sold out. Cities like Milwaukee, Minneapolis, St. Louis, Indianapolis and Cincinnati are making up parties to come to the races and already many reservations have been made by the outsiders.

The Diamond Rubber Co. has offered cash prizes to drivers in the Chicago races. They aggregate $2,775. For the Cobe trophy they are: To the driver using Diamond equipment who wins first place, $1,000; second, $750; third, $500. For the Indiana trophy, or light car race: First, $300; second, $150; third, $75.

STUTZ, BOOKED TO DRIVE A MARION

SAVANNAH HOLDS A RUN

Augusta, Ga., June 1—Seventeen cars competed today in the reliability run of the Savannah Automobile Club to this city, a distance of 135 miles, and of these four had perfect scores—the Packard, Acme, E-M-F and Chalmers-Detroit. Four Stevens-Duryeas incurred 25 points each; a Buick, a fifth Stevens and a Franklin, 50 points each; Buick and Reo, 100 points each, and a Maxwell, 175 points. One Buick was disqualified and a Franklin and a Buick dropped out. The Savannahans were given a barbecue tonight by the Augusta Motor Club and tomorrow they will drive home.

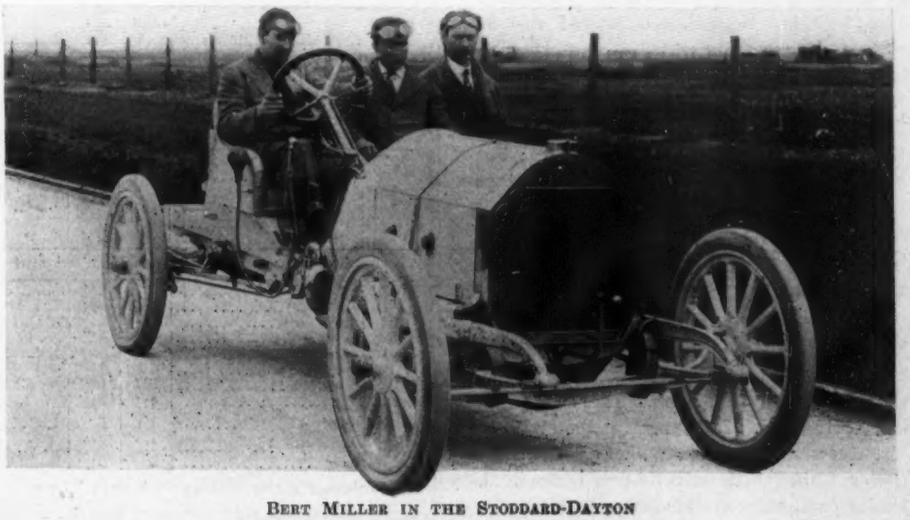
OFF FOR SEATTLE

New York, June 1—Instead of the field of thirteen cars promised, only five started this afternoon in the New York-Seattle race—two Fords, an Acme, a Shawmut and an Itala. Tonight the contestants stopped at Poughkeepsie and tomorrow they push on to Syracuse. The field is made up of the following cars:

No. 1—15-horsepower Ford runabout, Frank Kulick, driver; H. B. Harper, relief.
No. 2—18-horsepower Ford runabout, B. W. Scott, driver; C. J. Smith, relief.
No. 4—50-horsepower Acme, George Salzman, driver; Jerry Price, Fay R. Sheets and J. A. Hemstreet, reliefs.
No. 5—40-horsepower Shawmut, F. A. Pettingill, driver; C. H. Chapin and R. H. Messer, reliefs.
No. 6—45-horsepower Itala, Gus Lechleitner, driver; Albert Bellows and F. B. Whittemon, reliefs.

CHANCE FOR SAVANNAH

Savannah, Ga., June 1—"If there's to be a grand prize race Savannah will more than likely get it." This is the statement that Mayor Teideman brought back with him from New York. As soon as the A. C. A. officials found out that Mayor Tiedeman was in New York a special meeting of the executive committee was called. From what can be learned if there is to be another big race Savannah is to get it; the date probably will be in the first week in December.



BERT MILLER IN THE STODDARD-DAYTON

NEWARK RELIABILITY PROVES A MUD PLUG

NEWARK, N. J., May 27—Over a sodden course, and for a greater part of the distance in a driving downpour of rain, the 10-hour amateur endurance contest of the New Jersey Automobile and Motor Club, postponed from Saturday last, was run off today. The honors of the day went to H. A. Bonnell, who not only annexed the Crosby class B cup by sending his Maxwell 28 over each round of the 96-mile course in exactly 5 hours, but won the Maxwell challenge cup offered by the factory for the best performance of a car of that make, and in addition secured one of the cups offered by the club to all clean scorers. There was some talk of a protest because Mr. Bonnell, or someone in his car, used opera-glasses to keep tab on the official clock at the finish while yet a couple of hundred yards from the tape. While this foresight undoubtedly gave him an advantage over the others, all of whom finished a few seconds before or after their exact time, there was nothing in the rules forbidding it, and Mr. Bonnell was given a clear title to all his plunder.

Reo Wins Class A

In class A—for cars 20 horsepower and under—there were no clean scores, the Reo 20 of D. G. Holmes winning first place with 17 demerits as against the 36 of W. F. Hopping's Buick. The other two starters in this class fell by the wayside. R. S. Ward, who entered his 20-horsepower de Dietrich in this class, was transferred to class C, the contest committee deciding that the French rating differed so materially from the American that it would give Ward a decided advantage over the others in the small-car class.

Eight clean scores in class C out of eleven starters confronted the contest committee at the finish. The decision to give the preference to those who completed each round in 5 hours to the dot, however, eliminated five of these from the competition for the Sunday Call cup, leaving F. A. Croselmire's Locomobile 40, F. L. Kramer's 45-horsepower Jackson and W. Crosby's 45-horsepower Marmon tied for the honors. Just how the tie will be decided will be settled at a meeting of the contest committee next Tuesday night, June 1. There was some talk of having the three cars fight it out on the Decoration day run of the club to Atlantic City and return; but all three of the owners wanted a few days to tune their cars up again after today's hard jaunt, and that possible solution of the tie was abandoned.

Route of Contest

The rules called for a double trip around a 96.6-mile course from the clubhouse on Park place to Hackettstown and return, the loop taking in a score of towns, including Springfield, Madison, Mendham, Chester, German Valley, Allamuchy, Stanhope, Dover, Caldwell, Montclair and Bloomfield. Under ordinary conditions the task set the cars and drivers would have been an easy one, but the heavy and continuous rain soon made the road surface greasy, the going being particularly bad on the 20-mile stretch from Hackettstown to Dover. Owners drove their cars in every instance, and under the circumstances the run was a first-rate test for the average amateur. Drivers only were allowed to make repairs, replenishments, replacements and adjustments, outside help being prohibited except in case of tire trouble.

Original Feature of Run

One original feature injected by the contest committee was the placing at the tape of a huge official clock with a second hand sufficiently large to be seen half a block distant. No allowance was made for discrepancy of watches, start and finish time being taken from the clock. Each contestant was given 6 minutes' leeway in finishing at the Newark control on each round, a penalty of 2 points per minute being inflicted for arrival at the clubhouse more than 3 minutes before or after his official time. The committee decided to award the main trophies in each class, however, to the car which came nearest completing each round in exactly 5 hours, and the class B and C cups were awarded on this basis, although nine other cars finished with clean scores according to the rules. Some of the entrants seemed to be unaware of the on the dot decision, but it appeared that the committee had given due warning to everybody who attended the preliminary meeting. Stopping the motor without making repairs or adjustments cost 3 points per minute, while a similar stoppage for either of those purposes meant but 2 points per minute penalization. Stopping one's car after leaving Dover, except for tire trouble or to avoid a smash-up at railroad crossings meant 3 bad marks per minute. Fuel replenishment, except at the start and at Hackettstown, cost 1 point for each minute so consumed, while driving in a circle in order to delay passing the Newark control on either round meant 2 points penalty.

There was much loafing on the last ¼ mile, the majority of the contestants approaching the tape on both rounds at a veritable crawl, watching the big second hand of the official clock like so many hawks and endeavoring to send their cars over the line on the exact second. That this was no easy task was evidenced by the fact that no fewer than nine of the thirteen clean-score drivers failed to gauge the distance accurately. There were several close calls, where drivers, to prevent engine stalling, had to cross the line a second or so too early; others hung back so long that they failed to jump their cars across the intervening distance and lost out by finishing a second or so too late. A. B. Ward, while zig-zagging his Cadillac up Park place to the finish on the first round, slipped on the greasy asphalt and onto the curb, stalling his engine; he then withdrew.

D. G. Holmes' Reo, the class A winner, acquired 17 points penalty on the first round, the observer noting a 2½-minute delay in adjusting the carbureter, and a 7-minute stop to renew a spark plug, the latter a double penalty. It finished the second round clean, while W. F. Hopping's Buick, which had completed the first round without a demerit, finished its second journey 21 minutes late, which, allowing 3 minutes leeway at the finish, gave a penalty of 36—two for each minute shy. The delay was due to tire trouble.

After finishing their first round R. S. Ward's de Dietrich 20 and Frank Kramer's 45-horsepower Jackson, both came within

RESULTS OF THE NEWARK CLUB'S RELIABILITY RUN

Class A—20-Horsepower and Under—W. S. Thomas Cup

No.	Name of Car	Cyl. Bore	Piston Stroke	Driver	PENALTIES 1st Round	2d Round	Total
25	Reo	4¾	6	D. G. Holmes	17	0	17
11	Buick	3¾	3¾	W. F. Hopping	0	36	36
7	Buick	3¾	3¾	J. J. C. Humbert	DROPPED OUT,	TIRE TROUBLE	
19	Mitchell	4	4	D. J. Scott ....SKIDDED	INTO TEL. POLE AT ALLAMUCHY, RETIRED		

Class B—21 to 30-Horsepower—W. C. Crosby Cup

1	Maxwell	4¼	4½	H. A. Bonnell	0	0	0*
6	Maxwell	4¼	4¼	M. R. Sherrerd	0	0	0
16	Maxwell	4¼	4¼	And. Heuschkel	0	0	0
17	Chalmers-Detroit	3⅞	4½	W. L. Ferguson	0	0	0
24	Crawford	4	4	F. G. Goeken	0	0	0
14	Cadillac	4	4½	A. B. Ward..RAN INTO	CURB IN NEWARK, STALLED ENG., WITHD'W		

Class C—31-Horsepower and Over—Newark Sunday Call Cup

2	Locomobile	5	5½	F. A. Croselmire	0	0	0*
9	Jackson	4⅜	4⅞	F. L. Kramer	0	0	0*
10	Marmon	5	5	W. C. Crosby	0	0	0*
3	Oldsmobile	4¾	4¾	W. H. Cornwell	0	0	0
4	Marmon	5	5	C. E. Callard	0	0	0
8	De Dietrich	4½	5½	R. S. Ward	0	0	0
12	Haynes	5¼	5½	W. E. Shuttleworth	0	0	0
20	Flat	4½	5¼	A. A. Eisele, Jr.	0	0	0
5	Craig-Toledo	4¾	5	R. G. P. Dieffenbach	THREW BOTH REAR TIRES NEAR HACKETTSTOWN 1ST ROUND: WITHDREW		
18	Autocar	4¼	4½	M. A. Carpenter	WITHDREW IST ROUND; TIRE TROUBLE		
26	Flat	5	6	G. E. Gibson	NOT TIMED.	WITHDREW: TIRE TROUBLE	

*Finished Each Round in Exact Time

a hair's breadth of being put out of the contest. Ward attempted to fill his fuel tank without a funnel, and the resulting puddle of gasoline, which flowed back under Kramer's car, standing immediately behind the de Dietrich in the control, was ignited by a lighted match thrown away carelessly by a youth who had just ignited a cigarette. Fortunately the Martin motor chemical engine happened to be close by and by quick work the flames were extinguished before any material damage was done, but both cars started on their second round in a badly-blistered condition.

PLAN A MOTOR ROAD

Indianapolis, Ind., May 31—Plans are under way for a motor car highway between this city and Chicago, and following the incorporation of the company that is to conduct the enterprise, immediate steps will be taken to secure the right of way. Those who are interested in the company whose identity with the venture at this time is known are Charles S. Hernly, former traction magnate and capitalist of Newcastle; Benjamin F. Briscoe, of the Maxwell-Briscoe Motor Co., and Carl G. Fisher, who is interested in the Fisher Automobile Co., Prest-O-Lite Co. and Indianapolis motor speedway. The company will be organized with an authorized capitalization of $250,000, which will be increased as occasion demands. It is stated that sufficient capital is in sight from motor car interests to finance the entire project. It is estimated that the work will cost approximately $2,000,000 and that the road will be about 200 miles long. It will be operated as a toll road exclusively, with a tariff of $2 in either direction. A through motor car service will not be established, as has been persistently rumored. A private right of way will be obtained and probably will be fenced. The route has not been determined definitely, three routes being under consideration. One of these is by way of Lebanon and Frankfort; another by way of Crawfordsville and Lafayette, and the third by way of Noblesville, Tipton and Logansport. The company hopes to complete 25 or 30 miles of the road this season, starting from this city. The road will be 50 or 60 feet wide.

ROAD RACE FOR DENVER

Denver, Colo., May 20—A road race is the offering on the Denver Motor Club program for Monday, July 5. The race will be held on a 5-mile oval track about 15 miles from Denver, and the superb road conditions will permit some of the fastest going ever seen in the west. There will be fifty laps in the race. A cash prize of $500 in gold will be hung up by the Denver Motor Club, while two cups will be given as second and third prizes. A second contest for small cars is also being arranged. A grand stand will be erected, and the course will be patrolled by militia and the road will be closed to the public on that day.

Trenton Runs Off Its Reliability Test Tie

Trenton, N. J., May 31—The run-over of the clean-score cars which finished in the endurance run of the Mercer County Automobile Club on May 17 took place last Friday over a 64-mile course, with Windsor as the outer mark. The conditions called for a continual grind until but one car remained in each class. At the end of the sixth lap, just before midnight, nearly 18 hours from the start, there were still two cars running in class B—the Peerless driven by Manning and the Oldsmobile with Druck at the wheel. As both cars had been entered by Manning, he directed Druck to accept the second prize in the class, taking the main emblem himself. Both cars had covered 384 miles and were in apparently first-class condition and capable of continuing indefinitely. When the sixth lap began there were but two cars remaining in class A—Van Horn's Overland and Wehnen's Mercer. The former finished the lap 2 minutes behind time, due to the fact that, the headlight having worked poorly, Van Horn was compelled to slow up to avoid accidents. This penalty eliminated the Overland, but it developed that on the same lap the Mercer, which had started without lights, had been furnished with them at Cookstown, while the rules plainly stated that supplies could be taken on only at Trenton and at the Windsor checking station. A protest entered against the Mercer on this ground was sustained, and as this illegal taking on of supplies occurred before the late finish of the Overland, the Mercer was the first of the pair to be eliminated, thus leaving the Overland the sole survivor in class A. The Mercerites are sore, and want to pit their car, a local production, against the Overland for a 1,000-mile test on the road or track. Just to show that the Mercer was not all in, Driver Wehnen took the car around the course once more, making 448 miles. Aller's Regal and Toman's Maxwell, the other class A starters in the run-over, were eliminated early in the day, the former skidding into a ditch at Cookstown on the third lap and the latter getting into similar trouble on its first round near New Egypt. The Stoddard-Dayton, class B, driven by Luntheimer, dropped out after the first lap, its owner not caring to rack his car over the none too good roads. The Crawford, in the same class, with Shedd driving, kept up to the schedule till dark, when its lights not working properly it was withdrawn.

BALTIMORE MAKES AWARDS

Baltimore, Md., May 29—The contest committee of the Automobile Club of Maryland decided yesterday to reduce the penalty on the 35-40-horsepower Gaeth, which participated in the recent sealed bonnet contest and endurance run held under the club's auspices, from 45 to 12 points. The car originally was penalized 45 points on a technical examination, as its gasoline tank was reported to have leaked and its muffler pipe broken. When F. W. Sandruck, the local agent for the Gaeth, opened the hood of the car after it was taken to his garage he found there was no leak in the gasoline tank, but that the condition of the car was due to the slop-over from the fill. It was impossible to make this discovery at first for the reason that the seal on the hood was not broken. The tank, moreover, has not been repaired since. Mr. Sandruck reported the matter to the contest committee of the club with the result that the action mentioned was taken. Secretary Frank Darling, of the club, a member of the contest committee, also stated that part of the penalty points on the Gaeth were reduced because of a lower value to replacement of parts of the car's muffler pipe. The committee also decided to award six cups instead of four to the cars that made the best showings in the four classes of the recent contest. In class A the 48-horsepower Winton and 30-horsepower Packard receive cups, being tied with a penalization of 2 points each. This class was for touring cars of over 30 horsepower. In class B for tourabouts of over 30 horsepower the Gaeth referred to above and the 45-horsepower Stoddard-Dayton are the cup winners, each having 12 points. In this class the 40-horsepower Studebaker car finished with a perfect score, but Secretary Darling announced yesterday that it was a racing model and a non-contestant, so it is not eligible for a cup. The 28-horsepower Franklin, with a perfect score, gets the cup for class C for touring cars under 30 horsepower and the Hupmobile carries off the trophy in class D.

AFTER THE MISCREANTS

Council Bluffs, Ia., May 31—At the earnest solicitation of the members of the Council Bluffs Automobile Club, the city council of Council Bluffs, Ia., has passed an ordinance making it a misdemeanor to throw obstacles in the way of motor cars. The penalty for violation of either of these sections is made the same—a fine of from $5 to $100 or imprisonment for not over 30 days, or both such fine and imprisonment.

GLIDDEN ENTRIES TO DATE

Buffalo, N. Y., June 1—Chairman F. B. Hower, of the A. A. A. contest board, makes the official announcement that up to May 24 he had in hand thirty-two paid entries for the 1909 Glidden tour contests. This is within two of being four times as many entries as were in hand on the corresponding date of 1908 and 1907, showing a much more active and earlier interest. The entries already at hand include the following cars: Three Molines, four Premiers, two Brushes, one Hupmobile, three Maxwells, two Marmons, four E-M-Fs, three Chalmers-Detroits, four Pierces, one American Simplex, one Jewel, one Glide, two Stoddard-Daytons, one Rapid truck.

SHINGLE HILL HONORS TO BROWN AND BENZ

LOOKING DOWN SHINGLE HILL

CARS LINED UP AT TOP OF SHINGLE HILL, NEW HAVEN

NEW HAVEN, CONN., May 26—David Bruce Brown, driving the 120-horsepower German Benz, carried off the high honors at Shingle hill in the second annual hill-climb of the Yale University Automobile Club held this afternoon in :51⅕. The record established a year ago by Brown himself in the Briarcliff Fiat was 1:06⅘. The meet was chiefly notable for the large field of foreign entries against which the domestic cars made a very good showing. Like all Yale functions, it was conducted with snap and vim and a large crowd turned out to see the fun. The course was thronged from start to finish, and despite frequent warnings, the crowd nestled along the bare edge of the track bent on seeing the whole show with customary New England curiosity. One driver to avoid striking an individual who insisted in getting on the course, took to the deep ditch and how he ever managed to get out of it is a marvel.

The chief event of the meet was the free-for-all, which brought out twenty starters. Brown in the German Benz had things his own way and tore up over the course in :51⅕. The 120 Panhard driven by H. Walter Webb was hot after the German, but the best it could do was :57 flat.

Denison carried off the honors among the Yankee contingent, making the long, steep ascent in :58⅗, followed by his team mate, Bourque, in another Knox in 1:02⅕. Jack Coffey, of Hartford, made the run in 1:00⅘. Pepperday in the Isotta made it in 1:04⅗.

In the event for cars selling $3,001 to $4,000 there were a dozen starters. Miller in the 60-horsepower Stoddard-Dayton had an easy time of it in 1:05⅗, the nearest being Rippingill in the Allen-Kingston in 1:19⅗. Bourne in the Packard 30 did 1:21⅗, followed by the Thomas driven by Brau in 1:26⅗. Simplex carried off the next event, for cars selling for $4,001 and over, Moult doing the trick in 1:04, followed by Broesel in another Simplex in 1:04⅗. In the free-for-all for cars under $3,000 the Knox again made off with the trophy. Bourque gave a good account of himself in 1:00 flat, the fastest time of the day up to this stage of the meet. Cameron in the Chalmers was second in 1:02⅘. The free-for-all for cars of any motive power brought the largest number of starters, as already stated, Brown in the 6.1 bore, 8 stroke 120-horsepower Benz being first.

The climb was held under the sanction of the contest board of the American Automobile Association, which body was represented by C. H. Gillette, of the Automobile Club of Hartford. Robert Lee Morrell, of the A. C. A., was referee and Fred J. Wagner starter. Summaries:

CARS UNDER $1,250

Car	H.P.	Driver	Time
Buick	18	Burman	1:19 4-5
Overland	22	Gates	1:56

CARS $1,251 TO $2,000

Buick	30	Burman	1:07 3-5
Buick	30	Bull	1:18 1-5
Chalmers	30	Decker	1:35 4-5

CARS $2,001 TO $3,000

Knox	38	Denison	1:05 1-5
Chalmers	40	Cameron	1:07 3-5
Stoddard-Dayton	45	Tuttle	1:08 2-5
Chalmers	40	Lorimer	1:09 4-5
Knox	38	Bourque	1:10

CARS $3,001 TO $4,000

Stoddard-Dayton	60	Miller	1:05 3-5
A-K	48	Rippingill	1:19 3-5
Packard	30	Milbank	1:19 4-5
Packard	30	Bourne	1:21 3-5
Thomas	70	Bean	1:26 3-5
De Dietrich	40	Devereaux	1:23 3-5

CARS $4.001 AND OVER

Simplex	90	Moult	1:04
Simplex	50	Brosel	1:04 3-5
Isotta	30	Pepperday	1:07 2-5
Lozier	45	Beebe	1:13 3-5
Stearns	30	Doig	1:16 1-5
A-K	48	Hughes	1:19 2-5

CARS $3,000 UNDER, STOCK CHASSIS

Knox	38	Bourque	1:00
Chalmers	40	Cameron	1:02 1-5
Chalmers	40	Lorimer	1:05 3-5
Buick	30	Burman	1:05 4-5
Palmer & Singer	28	Walker	1:14
Stoddard-Dayton	45	Tuttle	1:07

CARS, FREE-FOR-ALL, ANY MOTIVE POWER

Benz	120	Brown	:51 1-5
Panhard	120	Webb	:57
Knox	48	Dennison	:58 3-5
Knox	38	Bourque	1:00 2-5
Columbia	32	Coffey	1:00 4-5
Isotta	50	Pepperday	1:04 3-5
Stoddard-Dayton	60	Miller	1:04 4-5
Stoddard-Dayton	45	Tuttle	1:07 1-5
Palmer & Singer	28	Walker	1:13
Chalmers	40	Lorimer	1:06
Chalmers	40	Cameron	1:13
Lozier	45	Beebe	1:10 3-5
A-K	45	Hughes	1:16 2-5
De Dietrich		Tyson	1:29 2-5

HARTFORD'S DILEMMA

Hartford, Conn., May 31—Aside from awarding the Maxwell Junior and Renault cups for winning their respective classes in the recent reliability run, the contest committee of the Automobile Club of Hartford is rather up against it. It was proposed that the class trophies be melted up and medals made from the material, then it was suggested that the lucky ones to finish with clean scores draw lots, one to take the cup, but this was regarded as a rather unsatisfactory scheme. In all probability cups for classes with several perfect scores will be redeemed and the equivalent in money expended for suitable medals. The clean score of the Inter-State has been questioned. On the last lap Mills, the driver, claims he turned his car into the ditch to prevent a collision, thereby damaging the oiling system.

RECORDS GO IN GIANT'S DESPAIR CLIMB

(*Continued from page 5*)

hour, the first turn was passed; a little later the motor was shut off for the Devil's Elbow; but a few seconds more there was another shut-off, followed by two others for the mountain house S. Once the grand stand was passed the thunderous roar of the Benz was heard from end to end of the course as it tore up the narrow roadway between the stone walls on the mountainside. "Finished," came the announcement. A few moments' pause and "1:31⅘" rang out.

But with the Benz record established, interest was far from lagging. The Chadwick, the hero of last year, was coming and everybody wondered if Larzelier would be able to reduce the record. And when 1:36 was announced he, too, received his quota of applause. Ralph de Palma, in the Fiat, made two attempts—in the first the timing apparatus went wrong, and he was sent down; in his next attempt a tire burst at the grand stand curve, and a moment later the anti-skid chain on a rear wheel broke and caught in the driving chain, throwing the car to the side of the road and brushing the stone fence. Great clouds of dirt were thrown over the spectators and an accident was looked for but as soon as the dust cleared away it was found de Palma had controlled the machine and the only effects being a slightly sprung front axle and a stiffened steering gear. He was sent down a second time and did not make the third ascent until later, when he set a figure of 1:36⅗. Merz took the National six up in record time, 1:45, or 37 miles per hour. Miller sent the Stoddard Dayton up in 1:46⅖ and Watson piloted the Simplex in 1:47⅗.

Event 9—This was for stock chassis with a piston displacement of 451 to 600 cubic inches and a weight minimum of 2,400 pounds. Denison driving a Knox was first in 1:40⅘; Merz in a National six was second, 1:47⅗; and Miller in the Stoddard-Dayton but ⅖ of a second slower, in 1:48.

Event 10—In this event for chassis with piston displacement of 301 to 450 cubic inches and a minimum weight of 2,100 pounds, Carl Wright, driving a Stoddard-Dayton, was first in 2:01, with the National four second, and Matheson and Knox also finishers.

Event 11—Cars in this event had to be owned by members of the Quaker City Motor Club, Philadelphia, no other limitations being placed. Denison in the Knox was first in 1:40⅕; Tom Berger in the Oldsmobile was second in 2:02⅖; and the American roadster and another Knox third and fourth.

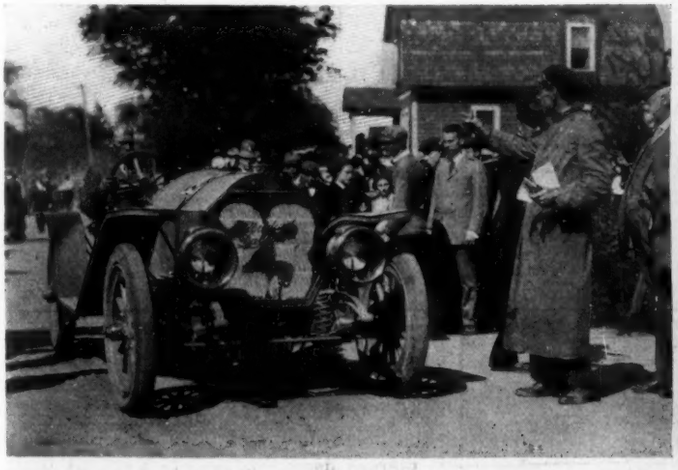
Event 12—Like the preceding event, this was an open race for cars owned by members of the Wilkes-Barre Automobile Club. There were five starters, and Robert Johnson driving a Knox was a popular winner in 2:21. Second place went to Edward Hobblett in an Oldsmobile in 2:26, and third to Edward Wilkie in a Buick in 2:34⅖. Fourth place went to the Regal in 3:18, and fifth to the Middleby in 4:32⅖.

Event 13, Invitation—This was an added event, not being announced on the program, and, next to the free-for-all, proved the magnet of the day. The starters were Chadwick, Fiat, Knox, National, Corbin and Matheson. A purse of $150 was offered the first, and $50 to the second. Larzelier in the Chadwick won, cutting ⅕ second off his previous mark in the free-for-all, doing the distance in 1:35⅘, or 40.5 miles per hour. De Palma and Denison tied for second place in 1:40⅕. They tossed for the flag, Denison winning, but later bisected the spoils. The National's time was 1:48⅘, within a second of its previous mark. Basle cut the Matheson's previous time to 1:58 and Swan piloted the Corbin up in 1:55⅗, which was the only time during the day it made the ascent.

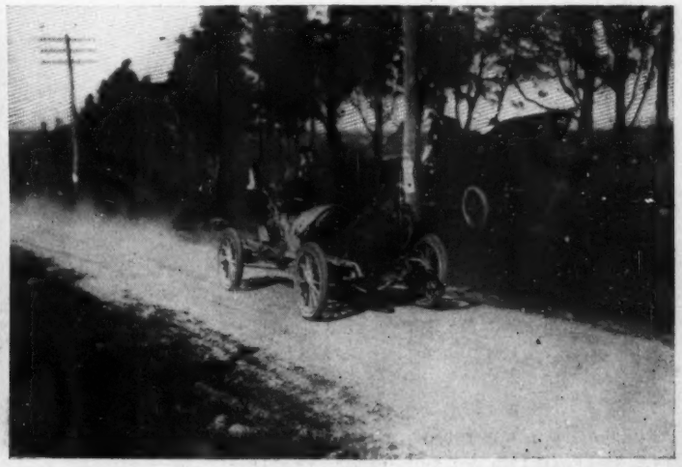
The gear ratio used on the cars was a much-mooted event, it being a difficult problem to get gear ratios well-suited for grades from 10 to 22 per cent, steep curves and S turns. The Benz, with four speeds, did not use the high at all, but went on second to the elbow and third from that to the finish. The Chadwick with four speeds did not use the high, but made the elbow on second and the remainder of the course on third. The gear ratio on Chadwick second is 2.3 to 1, and on third 3.6 to 1. The Fiat has but two forward speeds, the high 1¼ to 1, and the low 3 to 1. The high was used to the elbow and the low for the remainder of the course. This motor must have been turning over approximately 2,000 revolutions per minute on the first part of the course. The National six was geared 2.2 to 1 on direct, which was used to the elbow, and 3.85 to 1 on second, which was used beyond. On the four-cylinder National a gearing of 2.8 to 1 was used. The little Maxwell in event 1 employed a 4 to 1 gearing, as did the Buick in event 2. Three and one-half to 1 was used on the Oakland in the third event, and 3 to 1 on the Buick in this event. The other contestants used practically the same gear ratios as these and very few of them changed more than once on the course, all going on direct to the elbow, making the remainder of the course on second. Some of them in practice made the complete course on direct, but the time was poor. It was possible to shift into direct a 150 yards before the finish, which some of the contestants did.

OMAHA HOLDS RELIABILITY RUN

Omaha, Neb., May 31—Two perfect scores out of nine is the net result of the reliability contest today under the auspices of the Omaha Automobile club. A Stearns, driven by Charles R. Hannan, a Council Bluffs entrant, and a 28-horsepower four-cylinder Franklin, driven by Captain F. Buchan, were the two cars that covered the entire route, a distance of 149 miles, without penalty. Two cars, a Pierce-Arrow and a Cadillac 30, made the next best score with 998; a Haynes came through with four marks chalked up against it; a Chalmers-Detroit, with 6; a Stevens-Duryea with 21. The Packard in class G was 45 points in arrears.



STODDARD-DAYTON No. 23 AT NEW HAVEN



THE CHALMERS-DETROIT

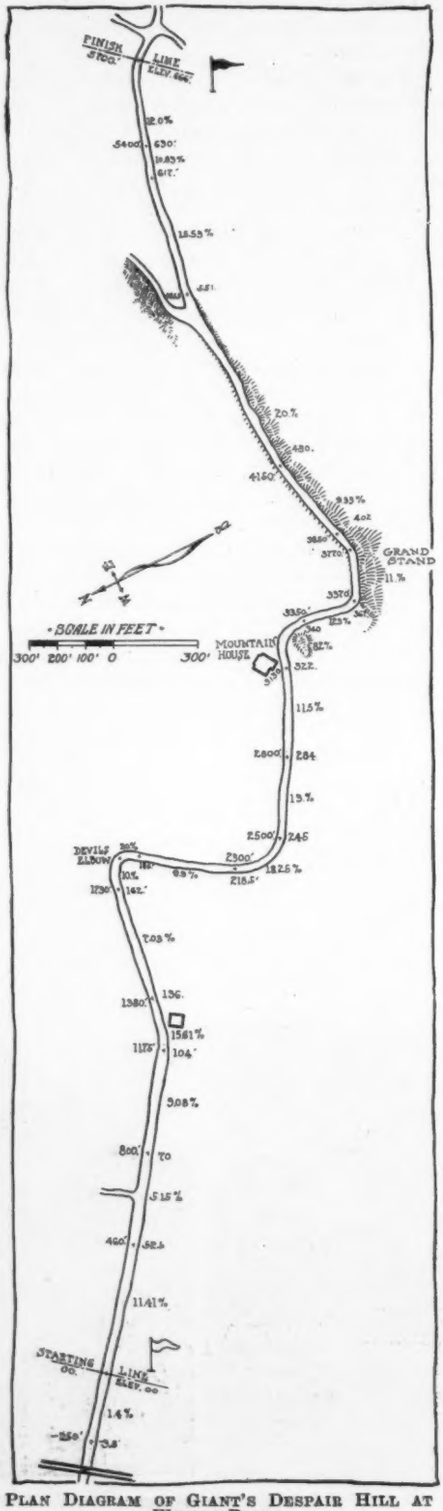
MOTOR CARS IN SOUTHERN RAILWAY STRIKE

ATLANTA, Ga., May 31—Carrying mail, papers, passengers and in some rare cases express and freight into the territory cut off in every other way from the civilized world by the firemen's strike on the Georgia railway, motor cars have recently given a wonderful demonstration of their ability to carry weight and travel the route in all kinds of going. This strike, coming with almost no notice and paralyzing the road from end to end, left a goodly number of prosperous Georgia towns absolutely cut off from the rest of the civilized world. No street cars ran there, no other railroads, it was too far in most cases to get to the big towns and to other railroads by horse-drawn vehicles and the inhabitants of these towns and cities were absolutely isolated, except for the motor traffic. To add to the complexity of the situation the wagon roads which parallel the Georgia railway are not models at best and during the strike were at their worst, for it rained every day the tie-up was in progress and had rained every day for a week before.

The strike became really effective Sunday, May 23. Monday morning before daylight the Atlanta Constitution had pressed a Lambert into service and delivered papers as far as it could in towns along the Georgia road. The same afternoon the Atlanta Journals went out in a Rapid truck and the Georgians in a Maxwell. The next day the White steamers cornered the newspaper delivery market and a fleet of Whites has since handled each day the papers from Atlanta down the Georgia road toward the Carolina line—a pair of the steamers racing a hundred miles or so every afternoon to see whether Georgians or Journals should first reach the strike-bound territory. The first day out the cars went to Madison, 78 miles from Atlanta. The next day one tried to reach Washington, Ga., something like 120 miles from Atlanta, only to get stalled at midnight in quicksands in the bottom of a creek bed, from which perilous position a pair of oxen and a regiment of negroes were needed to pry and pull the car out of the deep and sticky mud.

As the afternoon shift of Whites was pulling back into Atlanta Thursday night, along in the bleak hours just before daybreak lights were sighted in the middle of the road. Investigation proved that they came from a taxicab stranded between Conyers and Covington. This craft, never designed for deep-sea going, had sprung a leak or met some similar fate and had occupied the same position in the road for 1 day and 2 nights. The crew of the White hailed the wreck and two sleepy chauffeurs turned out. They were offered a free trip to Atlanta, but announced their intention of remaining aboard until relieved and crawled back for more sleep as the paper car sped Atlantaward. Much mail has been delivered by the paper cars and an occasional package in the outlying towns.

Persons wishing to go to or from towns on the Georgia road not reached by other lines have made free use of motor cars. One canny motor livery man had a telephone call to go to Conyers and carry back to civilization a New York drummer, marooned on unhospitable shores. Ten minutes after he received the call he drove up at the union station, from which Georgia railway trains leave, when they are leaving. "Passengers for Conyers," he yelled, walking up and down the station. "Car leaves in 10 minutes." Inside the prescribed time limit he had five passengers who were delighted beyond words at getting home at any cost by means of the motor car.



PLAN DIAGRAM OF GIANT'S DESPAIR HILL AT WILKES-BARRE

Probably the fastest run, outside the hair-raising night-and-day trips of the newspaper cars, was that made by a car which carried a military officer on Sunday afternoon to Lithonia, Ga., to attend his sister's funeral. He reached Atlanta late Sunday afternoon and expected to go straight out by the Georgia road, but was prevented by the strike. Before he could secure a motor car much time was lost and it was only by hair-raising running that he reached the little Lithonia church as the body of his sister was borne inside for the funeral service.

EXPORTS AND IMPORTS

Washington, D. C., May 29—That American-made motor cars are winning much favor abroad and that manufacturers are studying foreign trade conditions with care is indicated by the latest export figures compiled by the government's statistical bureau. The figures show that during April last 478 cars, valued at $677,965, and parts to the value of $42,458 were shipped to various foreign countries, as against 242 cars, valued at $460,090, and parts valued at $59,367, exported during the same month of last year. The number of cars exported during the 10 months' period ended April, 1909, was 2,088, the value of which was $3,523,715, while the exports of parts were valued at $475,744. During the corresponding period of 1908 the number of cars exported was 1,977, valued at $3,619,237, while the parts exported were valued at $488,831. Cars and parts were shipped to the following countries during April last: United Kingdom, $163,101; France, $121,773; Germany, $8,487; Italy, $25,700; other European countries, $75,044; British North America, $199,798; Mexico, $57,624; West Indies and Bermuda, $10,807; South America, $14,488; British East Indies, $6,364; British Australasia, $20,815; other Asia and Oceania, $6,383; Africa, $3,540; all other countries, $6,499. Imports of motor cars and parts also took a big jump in April last as compared with April a year ago. The record shows that 185 cars, valued at $312,159, and parts, valued at $50,997, were imported into this country, as against fifty-eight cars, valued at $148,603, and parts, valued at $38,365, imported during April a year ago. During the 10 months' period the imports of cars increased from 902, valued at $2,176,428, in 1908, to 1,300 cars, valued at $2,357,129, in 1909. The imports of parts likewise increased from $386,463 to $628,851 during these periods.

BLUE RIBBON COAST MARK TO THOMAS FLYER

SAN FRANCISCO, Cal., May 24—The record for the run of 575 miles between this city and Los Angeles, the blue-ribbon event of the Pacific coast, belongs tonight to a 70-horsepower Thomas six flyabout, which car, in a remarkable run between the two cities, won the honors today. The long run was made in 16 hours 45 minutes, which cuts 32 minutes from the mark of 17 hours 17 minutes held for the past year by a 30-horsepower White steam car owned by Fernando Nelson.

By its victory the Thomas gains possession of the massive silver trophy given by Fernando Nelson for the car making the fastest time between the two cities, and which he has twice won himself, first in a 1907 45-horsepower Columbia and later in the White steam car. The White, after making Los Angeles in 17 hours 17 minutes, turned around and returned to San Francisco, establishing a round trip record of about 38 hours. The Thomas today, however, was content to rest with its victory for the downward trip, Brassy, the promoter, being the Los Angeles representative of the Thomas.

The Thomas' performance may be judged from the accompanying table, which demonstrates that the car's time for the long run was but 1 hour slower than the Southern Pacific Coaster, one of the fast trains. What between the interference of two sheriffs and getting into a ditch, costing altogether about 50 minutes, the Thomas was well up to the railroad time. The tabulation follows:

	Thomas Flyer	S.P. Coaster
Distance	475 miles	475 miles
Elapsed time	16 h. 45 m.	15 h. 45 m.
Miles per hour, including stops	28.35	30.15
Average time per mile	2 m. 7 sec.	1 m. 59 sec.

The car left San Francisco this morning at 4 o'clock exactly, the starting word being given by Nelson, the holder of the record. At the wheel was Elmer Huber, and beside him Rene A. Brassy, the Los Angeles agent of the car. In the tonneau were Charles Cirelli, who went along to attend to the Diamond tires that equipped the car, and a press representative. The 218 miles between this city and Paso Robles was made in 6 hours, which is faster than it has ever been done before. This piece of the run afforded some good stretches of highway, and here the man at the wheel opened up the throttle.

It was near Santa Barbara that the car had its closest call. Bounding along at a point where the road runs parallel to the coast and is lined with sand dunes, the Thomas unexpectedly struck a piece of the soft and treacherous sand. The two front wheels wobbled and the car swerved badly. The machine plowed through the sand, leaped a 12-foot ditch, and was brought to a standstill on the other side by a second pile of sand. The damage consisted of a buckled steering rod, which took 45 minutes to repair.

And then stepped in the officers of the law, and their tactics seemed likely for a while to block all the efforts of the record-breakers to make a new mark. The sheriff of Santa Barbara county had been invited beforehand to ride with the record-seekers. He accepted the invitation, but his policy did not endear him to his hosts. He took the members of the party to the police station in Santa Barbara and required a deposit of $100 for their appearance in court for violating the speed laws. That done, he proceeded to continue on with them to the limits of the county, demanding that they proceed at what those in the car term a ridiculously slow pace. And then came the sheriff of Ventura county, adjoining Santa Barbara. The Ventura officer also had ideas about speed and insisted that in the populated sections the car be held down.

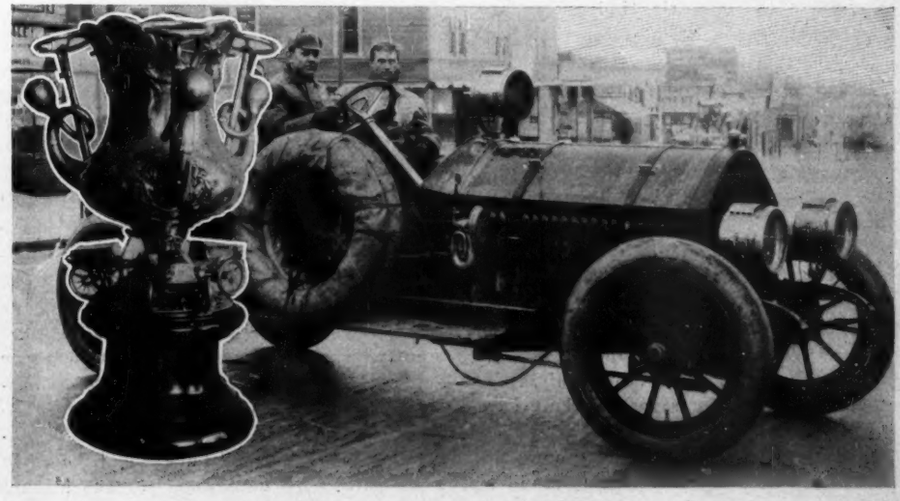
From here on there was no trouble. The car was in the hands of Harvey Herrick, a Los Angeles driver who knew every inch of the road. In Los Angeles the report had spread that the car was coming, and a crowd of hundreds of persons gathered to witness the finish. Suddenly the searchlight of the Thomas flashed out through the Broadway tunnel, and the car swung down the Broadway hill to the finishing line. Attached to the tonneau of the Flyer was the American flag that adorned the Thomas Flyer which won the New York-to-Paris race. No tire trouble was experienced, the Diamonds finishing with the same air they started with.

OVERLAND BUYS POPE PLANT

Toledo, O., May 29—The final details which turned over to the Overland company the plant of the Pope Motor Car Co., at Toledo were arranged Tuesday when President J. N. Willys, of the Overland Automobile Mfg. Co., of Indianapolis, at Cleveland, O., paid over the $400,000 necessary to purchase the plant. The closing details and the papers were signed in a law office at Cleveland and the purchaser took possession at Toledo immediately. The Pope plant formerly was one of Toledo's greatest industries and the difficulties which overwhelmed the great plant at the beginning of the panic was a severe blow to Toledo. When the Apperson deal fell through and Mr. Willys' attention was called to the advantages offered by the Pope plant here he saw at once it was the very thing he needed in the advancement of the Overland company, which was cramped for room in the old quarters at Indianapolis. Small towns throughout the two states of Ohio and Indiana eager to secure the Overland plant when it became known that Mr. Willys was willing to remove from Indiana offered him bonuses to build, but Toledo's unrivaled shipping facilities, large labor market and the fine plant here proved the greater inducement. It is expected that the plant soon will be employing 1,000 men and it is only a matter of a little time and adjustment until the original quota of 2,000 men will be back at work. The Overland company will move some of its machinery to Toledo.

AFTER HILL OF ITS OWN

Worcester, Mass., June 1—New impetus has been given the plan of the Worcester Automobile Club to own a hill of its own near Worcester, by President L. R. Speare, of the American Automobile Association, who upon a recent visit here promised to have the national hill-climb held on such a hill in 1910, and succeeding years if possible. During a luncheon, at which the Dead Horse climb of June 12 was the subject under consideration, President John P. Coughlin, of the Worcester Automobile Club, told President Speare of the half-formulated plans for buying a hill, paving it with Hassam paving and keeping it in condition at all times for motor hill climbing exclusively. President Coughlin has a batch of options on two hills near the Dead Horse course, one of which the club will undoubtedly purchase before the end of the summer.



RECORD-BREAKING THOMAS FLYER AND THE NELSON CUP

GOOD PROGRESS MADE ON MOTOR SPEEDWAY

INDIANAPOLIS, IND., June 1—Rapid progress is being made in constructing the new speedway and already Carl Fisher has driven a motor car around the outer track. The speedway park covers an area of 328 acres and when the work is completed there will be forty-one buildings, including grand stands, garages, aerodromes, clubhouses, machine shops, oil houses, refreshment and office buildings. The total cost of the plant will exceed $350,000. The circumference of the outer track and road course will be 5 miles. The track will be of a gravel surface and 300,000 gallons of asphalt oil. More than 3 miles of fence will be required to enclose the grounds. Nine miles of gas pipe will be needed for the lighting plant for illuminating the grounds for the 24-hour races, Prest-O-Lite gas being used. The grand stand and box seats will accommodate 25,000 people and 10,000 motor cars can be parked in the grounds. An electric timing and score board will be erected at a cost of $10,000, while the entire grounds will accommodate 200,000 people.

FISHER TRIES THE TRACK

STEAM ROLLER AT WORK ON INDIANAPOLIS TRACK

Army of Workmen.

Almost as by magic is the great course being finished, which only a few short months ago was given up to agricultural pursuits. Almost an army of workmen is camped on the grounds, while close to 1,000 mules are liveried. In addition to the great grand stands there will be twenty small stands for motoring clubs and parties. Opposite the main grand stand there is a press stand three stories high. The top floor will be for reporting the progress of the races, as the elevation furnishes a fine survey of the track and grounds.

The second story of the press stand will be for the telegraph operators; while the ground floor will be equipped as a dark room for developing the press photographs taken on the track. It will be one of the largest press stands ever built and will accommodate seventy-five press representatives and photographers at any one time; the press stand will adjoin the judges' stand.

The comfort of the men who come to the track with cars for competition will receive attention. Ten buildings will be erected for their use, each building holding a team of three cars. Sleeping rooms will be provided in each building for the individual members of each team.

There will also be two large general garages which will accommodate twelve cars each. The officials attending all meetings will also enjoy the comforts of a large club house, which will have all the conveniences of a city club. Another important feature is the restaurant capable of caring for hundreds of patrons, and located right on the grounds, while refreshment stands will be numerous. The Indiana Aero Club will have a club house in the park. An aerodrome for the storing of air craft is now completed and in service. A machine shop is also part of the equipment, while five large tanks for storing oil and gasoline are now installed; each tank will hold 5,000 gallons, and fuel will be supplied as reasonably as in the cities.

Dimensions of the Track

The track is 50 feet wide on the straightaway and 60 feet wide on the turns, while the turns which have a 1,500-foot radius can be made at the highest speed, as the banking of 12 feet makes them perfectly safe under every condition. There will be no fences on the straights, and one but 2 feet high on the turns which will be in the form of a guard rail, while on the inside it is possible to run off on a gradual slope with perfect safety. The contractors are about ready to start the laying of the 20,000 yards of gravel which will be put on the course. This will be rolled with the big 15-ton steam rollers and then mixed with 300,000 gallons of asphalt oil. The track will be dustless, while it is drained perfectly to dry rapidly in case of rain. Two forces of men are at work, and the work goes on day and night.

The roadway, 1½ miles leading to the track grounds, has been oiled and is being beautified; while special trains will be run at intervals of from 10 to 15 minutes, carrying 2,000 passengers a trip. This, in addition to the Interurban line which passes the grounds, which is less than 4 miles from the soldiers' monument in the heart of Indianapolis. Special police and mounted men will patrol the outside fences and the state troops will guard the race course for every event held on the now famous course. The first motoring event will be the National's attempt to drive 1,000 miles a day for 10 consecutive days, probably one of the greatest feats undertaken since Edge's memorable 24-hour record run.

ATLANTA PREPARING FOR ITS NATIONAL SHOW

ATLANTA'S AUDITORIUM

ATLANTA, GA., May 31—Atlantans are so busy just now in laying out routes for the eight endurance runs which are to bring cars by the hundreds and motorists by the thousands into Atlanta just before the national show next fall and in trying to raise prizes offered for these events and the good roads contests which go with them to $10,000, that they have almost stopped congratulating themselves on the remarkable achievement of getting a national show for Dixieland. This feat was a remarkable one and full of interesting features from its humble start as a newspaper project until the final act of wire-pulling and electioneering landed the plum for the Gate City of the South.

Newspapers Responsible

Two Atlanta papers laid the plans to spring the project at about the same time and then raced to see which could first hatch out the scheme. After it was sprung representatives of one of the local papers passed a petition among the dealers, asking for their support. Though E. W. Gans, manager of the southern branch of the White Co., was one of the last men seen, it happened that he signed his name at the top of the list, then the only unfilled space on the paper.

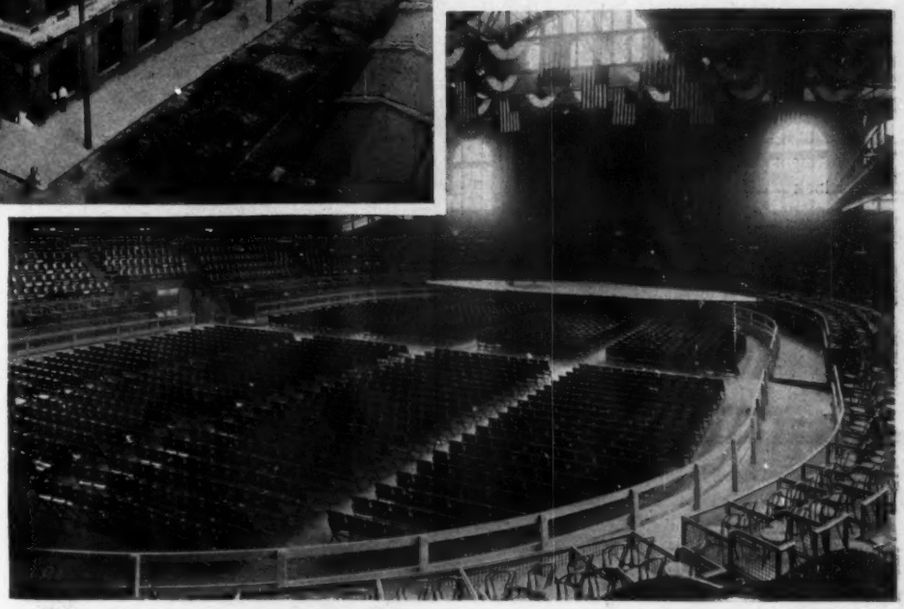
When the Atlanta chamber of commerce decided to meet with the dealers and talk over show plans Mr. Gans, as the man whose name led the list, was the one called on to get the dealers together, which he did. The meeting followed and at the session it developed that nobody had any plan of action and that the dealers had no organization. The chamber of commerce then politely suggested that the dealers organize, map out a plan and meet with the chamber again. So the dealers adjourned to another room and organized the Atlanta Automobile Trades Association. As it developed in the course of the talks on the subject of the show that Mr. Gans was the only man present who had ever been through one he was naturally elected to lead the trades association.

At the next meeting between the dealers and the chamber of commerce two factions developed, one favoring an immediate dealers' show and the other advising a delay and that an attempt be made for national sanction at least. There was a bitter contest, but it was finally demonstrated that an immediate dealers' show could not succeed in Atlanta and the project was shelved.

Atlanta Gets a Plum

Much correspondence followed with the moguls of the national associations of manufacturers and this finally led to a meeting in New York. Atlanta sent a small but persuasive delegation. In it were E. W. Gans and G. W. Hanson, representing the dealers; John Cohen, of the Atlanta Journal; Clark Howell, of the Atlanta Constitution, and Charles Ryan, motorist-at-large.

The meeting of these men with the officers of the manufacturers' associations did not last long. The isolated position of the south in relation to all other motor car shows was pointed out. The central position of Atlanta in the south was shown. Some fleeting allusions to the value of the annual cotton crop and to the growing wealth of the south were made and southern branch sales figures were quoted. And somehow the trick was turned—or turned itself, to be more exact. A national show was voted to Atlanta and it will be held there next fall, with enthusiasm on tap the like of which the motor car trade never before saw in the United States of America.



ONE OF THE MANY HALLS IN ATLANTA COLISEUM

Savannah has shown the world what one Georgia city can do in giving a race meeting. Atlanta now proposes to give a demonstration of show enthusiasm that shall be a credit to the southland.

TREAT FOR GLIDDENITES

Minneapolis, Minn., June 1—A decided novelty was added to the Minneapolis program for the entertainment of the Glidden army in July during the 2 days' stay in Minneapolis. A special race has been arranged between the two fastest horses in the world, Dan Patch and Minor Heir, owned by M. W. Savage, of Minneapolis. This race will be put on specially for the Glidden tourists and the members of the Minneapolis Automobile Club on Saturday afternoon, July 17, and will be a private exhibition all the more interesting because it will occur before these famous horses have appeared in exhibition in public together. A special train on the Omaha will be run to Savage, Minn., where the horses are quartered at the international stock farm and grand stands and other conveniences will be erected.

DESERT PATHFINDING

In the Desert

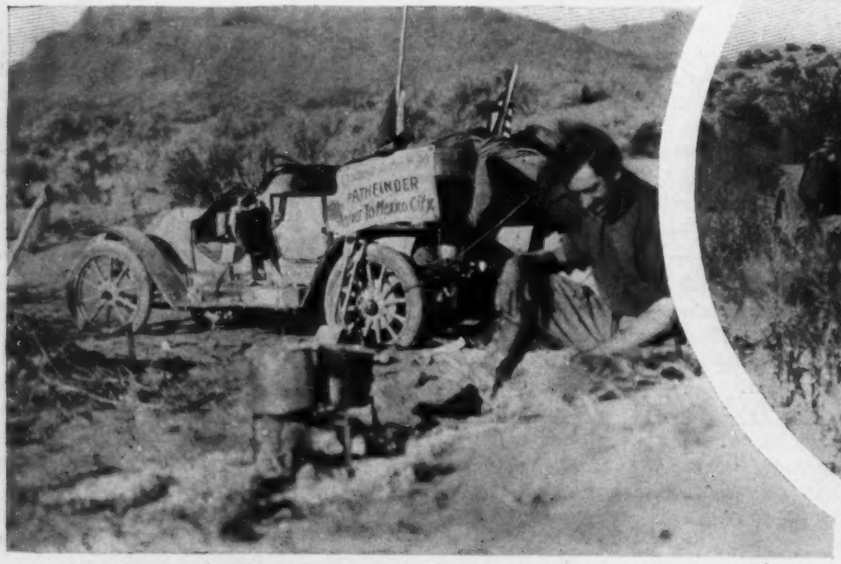
QUERETARO, MEXICO, June 1—It is expected that the pathfinding expedition blazing the trail for the Denver-City of Mexico run will reach the end of its journey Thursday morning, after having been 34 days on the road.

The arrival of the car in the City of Mexico will mark the end of one of the hardest pathfinding jobs of the year. A distance of approximately over 2,000 miles will have been covered and the greater portion of this through a country where the motor car is unknown and the white man seldom seen. The car, on its trip through Mexico, has excited the curiosity, interest and fears of the native Mexicans, who usually take it for some form of a devil and run in fear inside their houses and lock the doors. The cattle and great flocks of sheep, in which the country abounds, are even more excited than the natives, for the instant the car comes in sight they stampede over the plains, raising great clouds of alkali dust which blind the motorists. The pleasant features of the trip came in the trip from Denver to El Paso. From there the members of the party met their first hardships and left good roads behind.

Guides Hard to Find

The difficulties of the trip have been increased through their inability to secure a guide. On several occasions they used the native guide who, at all times, proved unworthy. The car has been repeatedly lost, as there practically are no roads and the pathfinders have to go miles out of their way to get around. This often necessitates their driving over dried-up river beds, sand and gravel, fording streams and bumping over high centers. By railroad to Jiminez is 146 miles from Chihuahua, but by this improvised road it is 156 miles.

The first and most serious trouble was met 64 miles out of El Paso when the car sunk over the hubs in the quicksand and block and tackle, which are carried for such emergencies, failed to budge the car. Two of the men, W. A. McCarton, of Denver, and James Howard, a guide from El Paso, walked back to the Mexican Central railroad, a distance of 46 miles, in the blistering sun to catch the first train into El Paso. William Knipper, the driver, and F. Ed. Spooner stayed with the car and their sufferings until the relief party arrived would furnish most striking material for a story of adventure. For 48 hours they had nothing to eat but cold pea soup and coffee made from what water of



Making Coffee with Radiator Water

Digging in Sand to Get Traction

THROUGH OLD MEXICO

LIGHTERING THE CARGO

rusty appearance they could squeeze from the radiator. Every other supply was gone. When the relief party arrived it was unable to get the car out and had to return for additional appliances. The car was finally extricated, but it caused a delay of about a week.

Continuing from there, they went over rough roads the greater portion of the way. The car worked fine and with the exception of a few stops to dig the car out, they made reasonable time into Chihuahua.

Mexican Hospitality

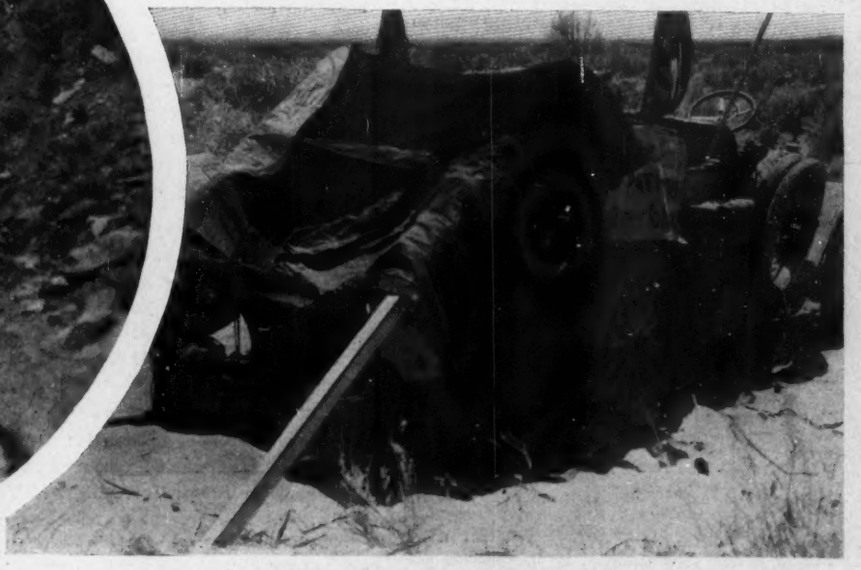
At this place the scouts met the first instance of true Mexican hospitality, and fatigued from their arduous journey, they were in a mood to take advantage of it.

At the time of the arrival the city was gayly decorated for a fiesta and the municipal officials entertained them with a bullfight. The welcome was so hearty that the pathfinders disliked to start out again, but were cheered by the knowledge that the roads ahead were much better and that they could take on a guide at Torreon, which would be their next stop. The car passed Jiminez about 8 o'clock in the evening and here the native women and their children scuttled into their houses in fear from the horrible eyes of the strange devil as it made its appearance.

Starting at Jiminez at daylight on Tuesday, May 25, without a guide the scouts flew along at from 20 to 30 miles an hour for 50 miles, closely following the tracks of the Mexican Central railroad, from which they disliked to deviate a particle owing to the former troubles. The next 50 miles was not so good and in the run of 156 miles not a town of any size was found and the 156 miles was a lonely drive. Troubles came every time when the railroad was departed from and the telegraph poles proved to be the guiding stars to the sister republic.

Over this distance from Jiminez to Torreon, not a town of more than one-half dozen houses was encountered other than Mexican houses in bunches made of adobe, cornstalks and railroad ties. Dust clouds blinded the tourists and covered everything ½ inch deep with choking, blinding dust. Under this layer of pulverization lay holes so deep that the entire car wheels went down and chuck holes wrenched the car violently. The days were unsufferably hot, so hot that the cushions had to be turned over whenever a man left his seat. There was no relief until night.

CANYON 22 MILES FROM SANTA FE



CAMP WHERE SPOONER AND KNIPPER AWAITED RELIEF

Legal Lights and Side Lights

HAMN BILL VETOED

GOVERNOR HUGHES, of New York, has vetoed the Hamn motor bill, declaring that the measure is defective in many respects, his chief objection being to the abolishing of all specific speed limits. In a memorandum giving his reasons for vetoing the bill the governor points out a few of the important objections which he claims makes it undesirable to enact such legislation. Great stress is laid on the fact that the provisions of the bill practically wipe out all speed limits and take from the local authorities power to enact traffic ordinances. Attention is also called to the fact that in the proposed law, even the present penalties for speeding are reduced. The vetoed bill was passed in the closing days of the session with the assistance of an emergency message from the governor. It was estimated the state would receive over $500,000 in taxes. In his memorandum the governor says:

The subject of paramount consideration at this time is protection to life and limb. We are passing through a period of adjustment when the natural hostility of many to new highway conditions is increased by abuse of privilege, and others are chafing under what they regard as vexatious restraints and unjust exactions. Nothing can be more certain than that the use of motor vehicles will largely increase, that the number of accidents will diminish, and that usage and common sense will largely do away with present evils. During this transition period, however, there should be the utmost care in legislation so that matters should not be made worse instead of better. There are many good provisions in this bill and it has been strongly urged that it should have a trial. But it seems to me better to wait and to secure an improved bill, than to enact a measure as defective as this one appears to be.

The present law provides specific speed limitations of 10 miles an hour where the territory is closely built up, 15 miles an hour elsewhere in a city or village, and 20 miles an hour elsewhere outside of a city or village. In addition, the present law also provides for a reasonable rate of speed in all cases—that is, that no one shall operate a motor vehicle on a public highway "at a rate of speed greater than is reasonable and proper, having regard to the traffic and use of the highway, or so as to endanger the life or limb of any person, or the safety of any property."

This bill abolishes the specific speed limitations, and with certain changes in phraseology with regard to the duty of care, proposes as the sole requirement as to speed, the following:

"No. 287. Speed permitted.—Every person operating a motor vehicle on the public highways of this state shall drive the same in a careful and prudent manner and at a rate of speed so as not to endanger the property of another or the life or limb of any person; provided that a rate of speed in excess of 30 miles an hour shall be presumptive evidence of reckless driving."

There is much force in the suggestion that requirements of due care cannot be accurately reflected in arbitrary speed limits. But it must also be remembered that in this field as in others a large number of injuries must inevitably be due to mere accident where negligence cannot be satisfactorily proved. It is public policy in dealing with these matters, not simply to see that negligent persons are held to account, but also by reasonable regulation, to diminish the risks of preventable injury. This is sought to be accomplished by speed restrictions. And it is still an open question whether at this stage in our progress toward the wider use of these vehicles of pleasure and convenience, it is safe to rely simply upon a requirement of care and prudence with all the difficulties that attend actual proof of want of care.

It is certain, however, that whatever may be said as to the wisdom of such a rule with regard to the open country, or in sparsely settled towns, we should not deprive our large cities of the right to make reasonable traffic regulations to insure the safety and convenience of the public.

About one-half of the population of this state is within the city of New York, and the mayor of that city has sent me a vigorous protest against the provisions of this bill. And whatever else may be said of it, it should not become a law if it takes away from the authorities of New York city that reasonable traffic control without which conditions in the metropolis would be intolerable.

In short, it would practically abolish municipal traffic regulations as to private motor cars. Any one acquainted with conditions in New York city knows how much of the public convenience and safety is due to the maintenance of proper traffic regulations and must recognize the impropriety of making such regulations impossible in the interest of the free passage of motor cars.

It would also appear that under this bill there would be no power vested in the local authorities to exclude motor trucks or motor vehicles used for commercial purposes from the parks of the city which are included in the public highways as defined in the bill. It would deprive the local authorities of any power they now possess for this purpose. These defects are grave enough to compel the disapproval of this bill. But, it may be added, with regard to the general application of the bill, that the abolition of specific speed limitations and the substitution merely of the rule of due care should carry with it stringent penalties in case of negligent driving. It would seem that the penalties for actually proved negligence should be heavier than those imposed for merely exceeding an arbitrary speed limit.

The penalties provided for in this bill, with respect to violations of speed requirements, are less stringent than those of the present law.

The present bill limits the amount of bail which may be taken, to $100. It provides that where the magistrate is without jurisdiction to try the offense, and the defendant charged with the violation of any provision of the act is held to answer, the magistrate must admit the defendant to bail upon his giving a surety company bond, or an undertaking, in the sum of $100, or upon his deposit of a like amount in cash. If records were maintained so that imprisonment were the inevitable consequence of conviction for a third or subsequent offense, such bail in many cases, might be wholly inadequate. It is apparent that careful drivers of motor cars, who have no desire to violate the law, are now held within what they believe to be unjust restrictions and are frequently made the victims of an abuse of legal process. But the remedy for any existing injustice must carry with it appropriate safeguards, and the more that is left to the judgment of the driver the more important it is that recklessness should be heavily penalized.

The joy riding bill of Senator Hill's, which has been signed and which will take effect on September 1, provides that "any chauffeur or other person who without consent of the owner shall take or cause to be taken from a garage, stable or other building or place, a motor car or motor vehicle, and operate or drive, or cause the same to be operated or driven, for his own profit, use or purpose, steals the same and is guilty of larceny and shall be punished accordingly."

WASHINGTON'S WHEEL TAX

The difficulties of collecting the wheel tax in Washington, D. C., were recently pointed out in Motor Age. In his opinion, in which he declared it was impossible to collect this tax without bringing suit against each individual owner, the assistant corporation counsel said: "I see no way of collecting this tax except by suit against those who refuse to pay. The law unfortunately does not provide any means of collection and there is no reference to any existing law which will help in this respect. I suggest that the assessor send out his bills and when he finds that this method is ineffective, that he refer some prominent cases to this office for action. Perhaps a few suits successfully conducted will establish a precedent which will be all that is necessary." As there are about 3,000 motor car owners in Washington, that number of suits will be necessary in order to collect this tax. At the next session of congress additional legislation will be recommended to make the wheel tax law effective. As it is not believed the present law can be enforced, the Automobile Club of Washington will take no action in the premises until next winter, when a campaign will be started to defeat any new legislation along this line that may be proposed.

NOT UP TO THE TIMES

It took a magistrate's decision, fortified by a strong argument by G. Douglass Bartlett, the legal light of the Quaker City Motor Club, to convince the Philadelphia motor cycle police that the Townsend law, passed at the recent session of the legislature and signed by Governor Stuart, is now in force. Wesley Burdett and E. A. Strong, Philadelphia motorists, were checked up by Motor Policeman Morley as having broken the speed laws up in Chestnut Hill, a suburb, by having driven their car at a speed of 23 miles an hour. The new law allows a maximum speed in the open of 24 miles an hour, and it later developed that the prosecution was brought under the old law of 1905. Bartlett's argument convinced Magistrate Scott and defendants were discharged.

GOPHERS FROWN ON SCORCHING

Speed maniacs hereafter will have short lives in Minneapolis. By the action of the Minneapolis Automobile Club at a recent meeting of the board of directors, stringent resolutions were adopted to do away with speeding. The club went on record as being strongly against speeding, and a resolution was passed inviting the public to report cases of violations of the law. The club will then investigate these charges, and when within its jurisdiction club members will be dropped from the club. Another idea was put into effect, following the lead of the Buffalo club, which has had the plan in operation for some time with considerable success. Dai H. Lewis, the Glidden pathfinder, told the Minneapolis motorists of the Buffalo plan of having a vigilance committee of club members, whose names are known only to the president. These vigilantes will report numbers of cars exceeding the speed limits or driving recklessly, and the owners or drivers will be notified to desist. The second offense brings another warning and

the car number and name of the owner are then placed in the hands of the police, with special instructions to watch out for it and arrest the driver. These various actions on the part of the motorists resulted from a wave of protest which has been sweeping over Minneapolis in the past 2 weeks, occasioned by bad accidents.

ENCOURAGES INFORMERS

Marshall, Mich., probably will have a motor law which will encourage the activities of spies and informers and which will make the life of a car owner in that city anything but a long sweet dream. City Attorney Dennison is at present framing the law. The proposed ordinance, which might be adopted in spite of the state law, provides a fine of $100 for each violation of the speed limit. In addition to this it provides that $50 of this fine shall be given to the informer. That is, when anyone brings in proof that an owner has exceeded the limit and the owner pleads guilty or is convicted, the informer is richer by $50.

GRADING LICENSE FEES

City Treasurer Adolph Edlis, of Pittsburg, is having prepared an ordinance providing graded license fees for motor car owners. The license fee now is $10 for a two-seated car and the license is good for 1 year. Some confusion has resulted, for if a man takes out a license in September his machine the next summer carries the license plate of the preceding year and under the city rules any ordinance officer is likely to hold him up and arrest him if he cannot produce a receipt for his license money. Treasurer Edlis' ordinance provides that no license shall be valid after February 1, following the year in which the license is issued. The cost of the license will vary with the month in which it is taken out: Following is the schedule outlined: In February, $10; March, $9.25; April, $8.50; May, $7.50; June, $6.75; July, $6; August, $5; September, $4.25; October, $3.50; November, $2.50; December, $1.75; January, 85 cents. The ordinance will also provide graded fees for peddlers.

CHECK ON JUSTICES

The difference of opinion between Justice of the Peace Naar, of Trenton, and State Motor Vehicle Commissioner Smith, of New Jersey, as to the necessity of the latter's department prosecuting non-residents in every instance where a magistrate turns over complaints and evidence to it was settled recently by Assistant Attorney General Gaskill, who handed down an opinion in which he held that it is not mandatory for the motor vehicle commissioner to serve all summonses issued by magistrates. The commissioner may issue such summonses in cases which he regards as meritorious, and in each such case he is entitled to 30 cents for each summons and 3 cents a mile for every mile traveled in making such service. Justice Naar had contended that the motor vehicle department was in duty bound to prosecute every case in which the complaints and the evidence were filed, regardless of the expense that might be incurred in locating the culprit. This will mean that hereafter each summons in the case of a non-resident will cost the magistrate 30 cents plus mileage in both directions for the constable serving the writ. From which it may be gathered that the magistrates will not be too prone to prosecute indiscriminately hereafter cases of this sort.

WEIGHT COMPARISONS MADE

Buffalo, N. Y.—Editor Motor Age—When comparisons are made between self-propelled vehicles the person who is seeking information is compelled in almost every instance to restrict himself to the railway locomotive and the motor car. They are the only ones that come under the classification of self-propelled vehicles that can travel for any considerable distance under their own power and carry their own fuel and supplies. All comparisons between the two, however, are rather unfair for the reason that one travels on a prepared track and the other must take road conditions as they come. In a comparison of the percentage of the weight of fuel and supplies to the total weight the motor car has a decided advantage as is shown by a table prepared recently at the suggestion of an inquisitive mind at the plant of the Pierce-Arrow Motor Car Co. For this purpose an oil-burning locomotive built for a western railroad a short time ago, was used. This locomotive weighs about 600,000 pounds and the oil and water carried weigh approximately 91,950 pounds, making the percentage of fuel and supplies to the total weight 15.32. Three Pierce-Arrows were used for purposes of comparison, all of them of the six-cylinder type. One was a 36-horsepower, one a 48 and the third a 60-horsepower car. An average was struck and it was found that the weight of gasoline, water and oil for the three was 5.53 per cent of the total weight, a difference of 9.79 per cent in favor of the car in spite of the fact that the locomotive, with a full tender, on an average, can travel only 70 per cent of the distance covered by a motor car on full tanks.—Pierce-Arrow Motor Car Co.

POINTS IN RADIATIOR DESIGN

Kenosha, Wis.—Editor Motor Age—The question of designing for appearance or for efficiency will perhaps always be a disputed one among motor car manufacturers, but it is not always wise to blindly copy. Sometimes an original designer, studying mainly for appearance, will neglect considerations of efficiency. This truth is exemplified in the construction of motor car radiators, where to make an appearance of compactness, the forward corner of the radiator was made of rounded form and unthinking followers have copied it. If the designer wished the radiator to have greater efficiency, with less regard to appearance, he would—instead of cutting off corners—make the sides and top of the radiator project beyond its face to form an air collector and compel more of the air it meets to pass between its fins and not escape around the edges. Some otherwise enthusiastic motorists have criticized the forward projecting edges of the Rambler radiator, without knowing that its form was adopted because of its efficiency and is accountable for the thorough water cooling observable by users of these cars.—Thomas B. Jeffery & Co.

POPE COMPANY AFFAIRS

Hartford, Conn.—Editor Motor Age—We enclose a copy of a notice regarding the redemption of the notes issued by this company at the time of its formation. It may be remembered that the total amount of these notes was $800,000, and they were issued in three series, running 1, 2 and 3 years. The third series, that is, the 3-year notes in the amount of $267,000, were taken up on January 2 last, 2 years and 5 months before maturity. The enclosed notice concerns the second and first series, and indicates that payment will be made 13 months and 1 month respectively in advance of maturity, the total of these two series being $533,000 and interest. The notice is as follows:

"The Pope Mfg. Co. having duly elected to redeem on July 1, 1909, at par and accrued interest, the entire issue of said notes outstanding under the first mortgage or deed of trust of said company to the Central Trust Co., of New York, as trustee, dated August 1, 1908, notice is hereby given that the said company has called all of said notes for redemption and that on the said first day of July, 1909, there will become due upon each and all of the said notes the principal thereof and accrued interest thereon to July 1, 1909, and that no further interest will be payable upon said notes or any of them. The said notes with the coupon of August 1, 1909, and all subsequent coupons attached are hereby required to be presented for redemption to the aforesaid trustee, the Central Trust Co., of New York, at its office, 54 Wall street, Manhattan, New York city, on or after the first day of July, 1909, and upon the presentation and surrender thereof as aforesaid, the principal of the said notes, together with the interest thereon to said July 1, 1909, will be paid."—Pope Mfg. Co.

The Readers' Clearing House

REMOVING STUCK PISTON

McLEAN, Ill.,—Editor Motor Age—In Motor Age, issue May 20, I noticed a reader has had trouble with piston rings which have expanded and caught back of the shoulder in the combustion chamber. This is rather a serious situation, but before he buys a new cylinder I would suggest that he try the following, which, although it may sound absurd, might prove of value: With an iron or steel shaft, the former preferred, about 1½ inch in diameter as a core and using No. 16 or 18 covered copper wire, wind a coil of six or eight layers, the coil to be about 8 inches long and one end flush with the end of the core. Stand the cylinder on end with the coil inside, making sure that the core is in good magnetic contact with the piston, but separated from the cylinder walls. Switch a current on and off in the coil, at the same time working the piston up and down with the connecting rod and, unless the rings are very strong, the magnetism may be sufficient to contract them so they will enter the cylinder grooves. The connecting rod might be used as a core but for the fact that the bearing at the piston end is doubtless non-magnetic metal. The size of the wire in the coil may vary somewhat, but the current used should be as heavy as the size of the wire will permit.—Reader.

DIFFERENT OILING SYSTEMS

San Antonio, Tex.—Editor Motor Age—Will Motor Age answer the following questions through the Readers' Clearing House: 1—Why are piston rings constructed thicker on one side than on the other? 2—Why do all motor wheels lean outward? 3—Which is better, to have the propellershaft inclosed or left open? 4—Which is the best system of lubrication, the inclosed lubricator in the crankcase or the method of the lubricator on the dash, or driven by a belt? 5—Is a device made known as a sand tire? 6—If a pipe should be connected to the carbureter so that no water could get in it, could the engine run with muffler under water? 7—Is there any difference in use of common spark plug substituting a magneto plug? 8—Should batteries be charged at regular intervals, or only when they are run down? 9—Which is better, to use shellac or prepared paint for painting rims? 10—In having a double ignition system, is it better to change using the battery plugs and the magneto plugs, to prevent sooting of both systems?—Appreciative Subscriber.

1—The eccentric piston ring is used in order that the ring may bear on the cylinder wall all around, thereby insuring good compression. Were the ring of one thickness throughout the parts near where the ring is split would not bear on the walls with anything like the same force they would midway between the ends and the result would be not sufficient compression and wearing the cylinder walls oval. 2—The majority of motor wheels lean outward at the top—cambered, as it is expressed—because roads are arched or cambered in the center and by cambering the wheel the tire tread is brought flat on the road surface. With a cambered road and a straight wheel the tire instead of running flat on its tread would be running on the inner edge of it. 3—It is an unsettled point as to whether the propellershaft should be encased or left exposed. Those manufacturers who enclose it do so to eliminate one universal joint in the system and frequently they also have in mind the elimination of a torsion rod and in some cases radius rods. Where the tube enclosing the driveshaft ends at its front in a ball-and-socket or stirrup support the tube may then serve as a radius rod when all the driving strain of the back axle is communicated through this tubing to the car frame. Where the car is not actually propelled through the tube it can be used for torsion purposes. In either case it eliminates parts. 4—At present the dash lubricator is little in demand, the trouble with it being leakage of oil on the floor boards of the car and often on the clothes of the front-seat passengers as well as having the oil exposed to the atmosphere where in cold weather it became too chilled. The crankcase-contained oiling system is gaining more adherents today than any other system, chiefly because it simplifies the motor by doing away with the copper oil pipes and makes the motor less complex in appearance. Tests have proven that crankcase systems in which the oil is circulated and re-circulated are more economical in that the oil consumption is lower than in the systems where oil is poured into the motor. Those makers who heretofore have used belts to drive the lubricators are now changing, or already have changed to flexible shafts or gears. 5—Motor Age does not know anything about a sand tire. 6—Whether a motor could operate successfully with the muffler submerged would depend on the depth of submersion. Should the water pressure be too great in the muffler that would set up back pressure against the motor and greatly reduce its efficiency. 7—The average spark plug may be interchanged with magneto plugs. Several magneto plugs are made with multi-sparking points to prevent melting together of the sparking points. The use of several sparking points on the same plug is based on the fact that as the temperature of these points increases so does their resistance to the passage of the electric current. Consequently should one set of points become red and approach the welding or melting point the resistance will be greater than between some of the other points and the spark will immediately begin bridging another gap. The melting of points in races has proven a troublesome point because of the high voltage delivered by the magneto at high motor speeds. 8—It is best to have ignition storage cells charged regularly, preferably after a certain mileage. With storage cells for propelling electric vehicles it is best to discharge them to the low point before recharging. 9—Shellac is most satisfactory for painting rims, although some tire concerns use special paints instead. 10—Where two sets of plugs are used it is customary to use the battery set for starting and immediately switch onto the magneto set. If one set is used all of the time the other set is sure to foul sooner or later.

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

WANTS SPARK PLUG TESTER

Ridley Park, Pa.—Editor Motor Age—Some time during the winter I read in Motor Age an account of a little invention on a spark plug cut out. It was simply a little attachment, like a knife blade, fastened to the plug so that in a four-cylinder car three of the plugs could be cut out to see if the fourth was working properly. As I remember it there was little else to it than to turn a handle and throw a wire against the cylinder casting. Do you know where I can find such a device on sale or where similar devices are manufactured?—I. D. Wood.

Motor Age cannot recall definitely to what device you refer. On Packard cars a knife blade cut out is furnished to each cylinder, but in this the wires to the switches remain stationary. In Rambler cars a similar type of cut out is furnished.

FOR RAILWAY MOTIVE POWER

Blue Canon, Cal.—Editor Motor Age—Few motorists have given much attention to the gasoline engine for motor car service on the transcontinental railway systems of the United States. The general adoption of the hydrocarbon motor as a motive power speaks unlimited confidence for its reliability and adaptability when reorganized by Mr. Harriman. Being at present engaged in running one of these cars, I thought the matter would be

of interest to readers of Motor Age. The cars are of standard gauge, 4 feet 8½ inches, with total weights varying from 60,000 to 70,000 pounds according to the general style of body. The motive plant, however, is standard for all cars and consists of an air-starting reversible six-cylinder 10 by 12-inch motor, 200-horsepower, 350 revolutions per minute. The motor is of the valve-in-the-head type having separate camshafts for the intake and exhaust valves which are driven by chain off the shaft. Newer cars have discarded the valve chain drive between the main crankshaft and the camshaft gears. Intake valves have a diameter of 4 inches with ¼-inch lift, and exhaust valves are 4 inches in diameter with ⅜-inch lift. Valve timing is as follows: The intake opens 10 degrees late and closes 5 degrees late; the exhaust valve opens 15 degrees early and closes 5 degrees late. This has proven eminently satisfactory for the number of revolutions per minute this motor turns over, the motor being geared on high speed 26 to 30 on a 42-inch drivewheel, speeds in excess of 60 miles per hour being easily attained. Sixty-eight pounds pressure is the compression used. Several break tests have shown horsepower attainments in excess of 250 horsepower. Starting and reversing of the motor is accomplished by a sliding set of intake and exhaust camshafts operated by the large lever. In the starting notch the left set of cylinders are two cycle and air is admitted to them by a vertical throttle valve, shown to the right of the reverse lever, thus virtually making them an air engine. This cranks the right three which, when they shoot, in turn crank the left three until they assume the cycle of operation. Immediately after the right three shoot, the reverse lever is dropped from the starting notch into the last or four-cycle notch. Lubrication is by two McCord force-feed oilers to the cylinders, crank throws and main bearings. The ignition is taken care of by two independent systems, namely, storage battery and coils, and magnetos with a coil. The timer to the battery system can be seen on the intake camshaft to the left of the reverse lever connection. Connecticut coils are used and in the magneto section, both the Remy and the Bosch high-tension are used. The Remy has the advantage of being operative when the motor is running reversed, but with the Bosch the battery system has to be used. Carburation is taken care of by both the Kingston and McKeen carbureters, 3¾-inch size. Water circulation is taken care of by a rotary pump geared to the engine. Cooling is carried on by radiators, both under pilot and under the bed of the car, and is ample. Drive from the motor to the transmission is accomplished by a Morse silent chain. The clutch is somewhat similar to the Thomas type. A two-speed gearset is used, the reverse not being present on account of the reversible engine. The gearset is similar to that used on the White steam cars. Control of the clutch and gears is obtained by air pressures operating within the two double-acting air cylinders, the different flows of air being in turn controlled by a small air valve in the cab. The car is equipped with three large reservoirs for storing air to start the air brakes, whistle, etc. These are filled by shop air at terminal points or produced by an auxiliary horsepower gasoline air compressor. It is a complete compressor unit within itself. The top, or usual explosion chamber, is present and the lower end of the cylinder is the air compressor end, thus making necessary its inclosure and the use of a piston rod and crosshead. Another air pump is geared direct to the motorshaft and is amply sufficient for all air demands on the road. Being positively connected to the motor it runs at all times with the motor. A gasoline supply of 120 gallons is carried with 70 gallons of water in the cooling system. From 2½ to 3 miles to the gallon is the fuel consumption, which I consider excellent. These cars are giving excellent results, the operating expense of which is 18 cents per mile, and a further reduction is bound to follow when better housing and machine facilities are permissible.—W. R. Harlan.

FRANCE WANTS STOCK EVENTS

Chicago—Editor Motor Age—In its editorial on racing in France, Motor Age, issue May 27, takes a very sane view on the actual situation in France. Herewith is a translation of a letter written to L'Auto, which is promoting the voiturette race, by a manufacturer whose sentiments reiterate those of the big majority of French makers, and the reply by that journal under date of May 11, with which no car maker will argue:

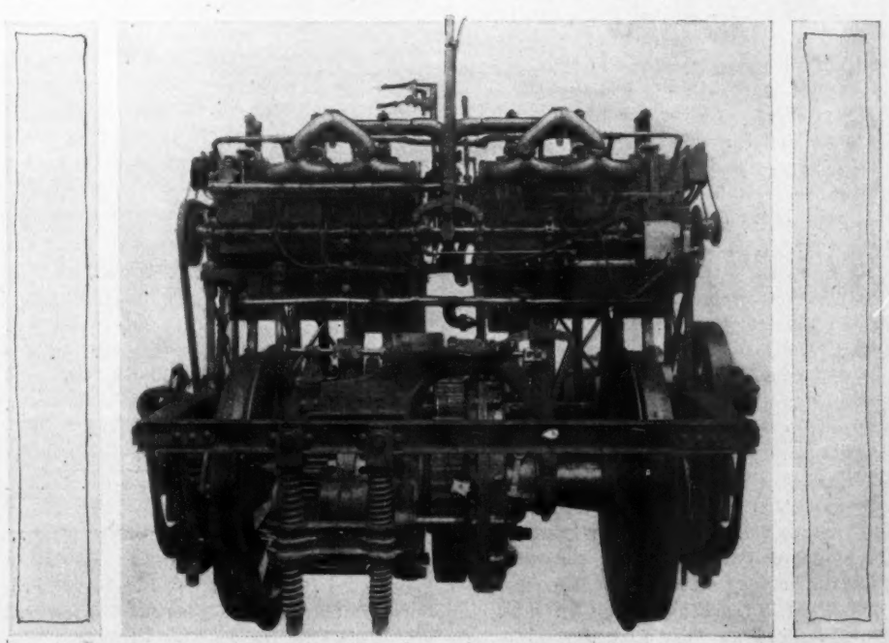
"Editor L'Auto—We will not enter in the voiturette race organized by L'Auto, not because the race itself will be without interest, but because we are makers of voiturettes, practicable and of every use, and do not believe in speed monsters or racing freaks, and we will never manufacture them. Yours truly, X. Maker."

In answer to the above letter L'Auto states: "We would be only too glad to see nothing but cars of a strictly stock class, cars similar in every respect to those offered for sale to the public, but owing to the difficulties encountered and the impossibility of barring ringers, the 1909 rules are the best we could evolve under the circumstances. On the other hand, we do not see why manufacturers like de Dion, Delage, Gregoire and others would not enter their cars, not in the expectation of winning, but just to show the buying public that alongside the racing machines their little stock cars can make a very creditable and remarkable performance. The public will not be slow to realize the difference between the 80-miles-an-hour monsters and the little, steady, keep-on-going stock voiturettes, and the comparison will be to the advantage of these last named. But we are not manufacturers, we are only promoting this race and are sorry to see the stand taken toward us by the manufacturers.—L'Auto."

No, Mr. L'Auto Editor, your arguments might be all right, but it is impossible for big makers, like those you mention, to see the force of them, or would they care to see their little cars, which, by the way, are today the acme of reliability, economy and low cost of upkeep, lapped by specially-built racing machines which have to be towed to the track and which, when the race is over, are of no use whatever.—E. Lascaris.

KNOCK FROM TOO WEAK MIXTURE

Dowagiac, Mich.—Editor Motor Age—Replying to K. K. Keith, Eagle Grove, Ia., in the Readers' Clearing House, issue May 20, I wish to say that he is perfectly right



GASOLINE MOTOR USED ON RAILROAD CARS

in finding that the gasoline knock or tapping, which comes from an engine when it is laboring, is caused by too weak a mixture. The cars I drive are fitted with dashboard adjustment of the needle valve with which it is very easy to experiment. I find that when running on a good, level road with the valve nearly closed and the engine running as smooth as velvet, the tapping will invariably be heard on mounting a hill unless the needle valve is opened before the extra load of climbing is put on the engine. If the hill is long enough, the noise can be stopped before the top is reached by opening the needle valve on the way. This is partly the evidence upon which I based my statement to you last summer that overheating will be caused by too weak as well as by too rich mixture. This is logically true, also, from the fact that a weak mixture is slow burning and therefore heating, as well as one too rich, with the further disadvantage that there is not the power in a mixture too weak that lies in one too rich.—A. B. Gardner.

ILLINOIS LICENSE SUFFICIENT

Brimfield, Ill.—Editor Motor Age—During the summer I anticipate taking a motor trip through the states of Iowa, Missouri, Nebraska and Kansas. Will Motor Age tell me if I can travel through these states on my Illinois license? If not, what must I do.—A. A. Knapp.

It is not necessary for you to take out additional licenses when touring in Iowa, Nebraska and Kansas, if the license number of the home state is displayed. In Missouri, however, the Illinois tag is not sufficient, but the tourist or visitor is exempt 20 days if home state registration number is carried.

QUESTIONS ON IGNITION

Blue Canon, Cal.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions:

1—What is the difference in efficiency and upkeep between the usual type of battery and four coil system applied to a four-cylinder motor, or the battery, single coil and distributer?

2—The ordinary battery systems noted above are capable of reversal in a reversible type of two or four-cycle motors, are they not?

3—Should not the spark advance in normal rotation direction denote spark retard in the reverse rotation direction and the spark retard also?

4—In a dual system of ignition, where a low-tension magneto and battery are stepped up by a coil common to both and distribute and fire through the same timer or distributer and plug and where the battery system is the necessary system, is not the type of coil applicable for best results for magneto ignition entirely too extravagant for battery system current?

5—What is the basic reason for this?

6—Is there any mode of attaching an Atwater-Kent ignition outfit to a reversible motor so it will perform its functions in the reverse direction?

7—In a four-cylinder, two-cycle engine will not a magneto give hotter sparks and consequent greater flexibility and results without resorting to battery than the four-cylinder, four-cycle type at 5 to 6 miles per hour, due to the more rapid speed of rotation of the magneto armature necessary with the two-cycle type?

8—For the same reasons cannot a four-cylinder, two-cycle motor be started easier on the magneto by cranking?

9—In a 7½ by 10½ six-cylinder reversible 200-horsepower, 500-revolutions-per-minute motor, what type of ignition apparatus would give the most efficient results for an extreme variation of rotation speeds of the motor from 600 revolutions per minute down to 100?—W. A. H.

1—The battery and single-unit coil, affording, as it does, a simpler wiring system and freedom from vibrator trouble, has the disadvantage of a high-tension distributor, which unless well made and protected, will give some trouble. It is harder to distribute a high-tension current than to use a commutator in the primary circuit. 2—These systems may be reversed provided the commutator used is designed to allow of the revolving contact traveling in the opposite direction. Some makes of commutators cannot be reversed. 3—This rule should apply. 4—It is customary to wind a coil to suit the magneto. Some magnetos fail entirely to give good results with certain makes of coils. 5—The reason for this is found in the design of the magneto. Some magnetos increase in voltage proportional to the increase in speed of motor, whereas others do not, and a coil suitable for one will not be suitable for the other. Then again some makes of magnetos have more gradual rises to the maximum and abrupt breaks, whereas others differ. 6—The Atwater Kent system cannot be reversed. 7—The voltage in the four-cylinder two-cycle motor would be greater because the armature revolves at double the speed. 8—There is no difference in starting the two, however, because the part of the stroke creating the spark is so short. Theoretically there should be a slight difference. 9—On engines of this size make-and-break ignition has been found most satisfactory.

MIXES GRAPHITE WITH OIL

Gallup, N. M.—Editor Motor Age—Through the Readers' Clearing House will Motor Age advise me whether or not one tablespoonful of flake graphite to each quart of oil for the lubricating system will have any bad effect on the engine? I have a Hill oiler on a four-cylinder motor. I use this mixture in the crankcase also.—C. M. Cotton.

Flake graphite has been used as a lubricant for cylinders of gasoline engines in many cases. It could be used in the proportion of a scant teaspoonful to a pint of oil. This mixture may be introduced into the crankcase by removing the side plate or pouring down the vent tube, but Motor Age has no record of it ever having been fed through an oiler such as you speak of, but would appreciate communications from readers who have used it in such manner. Some users introduce the graphite direct to the cylinders through the sparkplug hole, or the opening for the make-and-break parts, using an insect gun quill with rubber tube attached. When the latter method is used the quill is filled by inserting it into the graphite, followed by blowing through the rubber tube, when the graphite will be discharged into the cylinder.

NORTH DAKOTA LICENSE

Medina, N. D.—Editor Motor Age—I want to drive a Reo car from St. Peter, Minn., to Medina, N. D. Will it be necessary to procure a Minnesota and Dakota license before starting on this trip?—W. E. Doty.

You will not have to take out licenses in Minnesota and South Dakota, provided the license tag of your home state is displayed. In North Dakota, however, you cannot tour without carrying its license tag.

BACK-FIRING INTO CARBURETER

Cincinnati, O.—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me what causes my 4½ by 5-inch opposed motor to back fire through the carbureter without advancing the spark at all? What makes it miss on low speeds and more than ever on very high speeds? I have more trouble from the back firing on high speeds, so that when running at a fair speed it will back fire, causing the machine to slow up for an instant, then pick up again, etc. What can I do with the coil? Some time ago I was unable to get any spark whatever; adjusting the screws on the vibrator did not help the matter, so I put the coil in the oven for a few hours to draw out the dampness and found that it would work again, but very poorly on high speed. When I adjust the vibrator on the coil to work at a good engine speed, I find that on stopping the engine and starting again I have to crank the engine a dozen or more times, and it does not always start then.—A Subscriber.

When back firing into the carbureter occurs that is proof that your intake valves are not seating properly for the reason is that when the spark takes place and the explosion occurs a part of the flame escapes past the intake valve into the intake pipe where it ignites the mixture. This may be remedied by grinding the intake valves—directions for which work were given in last week's issue of Motor Age. The loss of power is due to the loss of compression because of part of the charge escaping back into the intake pipe on the compression stroke. It may be the intake valve springs are too weak. This can be determined by inserting a screwdriver blade between the coils of the spring

when the motor is running and observing if there is any lessening of the trouble. The coil should not require baking unless it has got wet, which would cause a short circuit and result in skipping. In baking a coil use a temperature of 80 degrees and keep it up for some time rather than using a higher temperature for a shorter time. The only danger in baking a coil is melting the wax which is around the coil in the box. The fact that the motor misses on high speeds may be due to some leak in the coil which could only be rectified by returning to the coil manufacturer. Instead of changing the coil vibrators so much examine their points and it may be there is some pitting or deposit. These points should be smooth. Before cranking the motor a dozen times to start ascertain if your vibrator is working and then you may be sure the trouble is with carburation and not ignition.

CHAIN AND SHAFT DRIVE

Cochren, Ga.—Editor Motor Age—Through the Readers' Clearing House will Motor Age answer the following questions: 1—Why is it that a Ford engine will race and cannot be throttled down? 2—Explain the advantage of a single-chain drive over a shaftdrive on light cars, like the Reo, single-cylinder Cadillac and Buick. 3—Why does the water boil in a thermo-syphon car on a short run of 100 miles? 4—Give me a formula for making a good brass polish.—Charles S. Felten.

1—If you cannot throttle your motor down it is due to the throttle control connections either being worn or damaged. In some cars the gradation of control is not so gradual as in others. 2—As to whether there is any advantage in single-chain drive as compared with shaft is a much-mooted question, particularly where the chain is not enclosed but exposed to dust, dirt and water. On direct drive the enclosed chain offers greater efficiency than the shaft in that the chain connects direct from the crankshaft, as it were, to the rear axle. 3—The water should not boil in a 100-mile run on a thermo-syphon-cooled car. If it does the mixture may be too rich or the spark not advanced enough. Look after these two features and if it continues to boil see that the interior of the cylinders are free from carbon. With these matters corrected flush out the radiator and jackets at a hydrant. Should heating continue it would be time to inquire if the radiator is large enough.

THREE-POINT PATENTS

Springfield, Mass.—Editor Motor Age—Kindly inform me through the Readers' Clearing House whether or not there is to be a Vanderbilt cup race this year, and if so have any cars been entered? I have heard nothing of any race so far. Who invented and holds the patent on three-point suspension in this country?—A Subscriber.

It is not expected that there will be a Vanderbilt cup race this year. As yet no cars have been entered. The earliest patents on three-point suspension are supposed to be held by the Stevens-Duryea company, but Motor Age is not certain on the matter. The three-point systems used vary so much that many of them cannot be literally designated three-point systems. The Stevens-Duryea uses a couple of forward points and one midway of the car beneath the gearbox and in which system the motor, clutch and gearbox form a unit. In another car the motor is carried on three points and the gearbox on four. A third concern using a unit motor and gearset employs the single supporting point in front and the two points in rear.

BOOSTING GOOD ROADS CAUSE

Peotone, Ill.—Editor Motor Age—Motorists are not the only ones making for the improvement of the country roads. The farmers themselves are awakening to the proposition and as an example of their earnestness I would point out a special road contest that is being arranged by the promoters of the Eastern Will county fair, which is to be held here September 15, 16 and 17. The business men of Peotone have subscribed to a prize list which totals $135, and it is expected that the contest will result in a marked improvement in the country roads hereabouts. Rules to govern the contest have been framed up and they show the promoters have given the subject much consideration. Thinking perhaps other counties might be interested, I send the rules, which are as follows:

Rule 1—Farmers living upon any mile of road within the limits, having agreed among themselves, must appoint one of their number to apply for entry. If the judges decide the mile of road seeking entry to be one of the main roads leading to Peotone, they shall accept the entry and assign No. .... to that mile beginning with 1 in the order they are received, and after entry that mile will be known as "Prize road, mile No. ...." The judges will then furnish the contestant with the conditions.

Rule 2—At the time of entry, each contestant will furnish the judges with a fair, honest statement of the condition of road, which statement shall be placed in an envelope. The contestants shall also make and render, not later than September 10, a full report of the number of hours of labor performed, also whether all the conditions have been complied with and, if not, wherein they have failed. Which report shall also be placed in the envelope.

Rule 3—As a guide for the judges and contestants, the following will be considered as the standard of perfection, as follows, to-wit:

Fences and hedges to be in a neat and tidy condition. The height of hedges to be not more than 4½ feet.

Road side to be clear of all obstructions and to be kept neatly mowed.

The road, or track—the all important thing—to be wide enough for two tracks, and two to be maintained wherever possible. One track to be smoothed during or immediately after each rain or shower and left smooth until dry.

There must not be any perceptible roughness or unevenness at bridges or culverts.

No refuse, glass, or stones permitted to remain on track or roadside. No ruts or holes which might serve to hold water. The whole width of road to be gently rounding; the center to be not more than 10 or 12 inches higher than the sides when the road is from 18 to 20 feet in width. No perceptible hog back to appear.

No stock allowed to feed on road when same is wet.

Rule 4—The judges in judging any mile of road entered must use a scorecard; points to be divided as follows:

Twenty points as handicap, to equalize road conditions at entry.

Ten points on appearance of hedges and fences.

Twenty points when two tracks are maintained—if possible—the entire mile.

Ten points on appearance of roadside.

Ten points on there being nothing to hinder the water from getting clear to the side ditch.

Ten points on smoothness at bridges and culverts.

Ten points on the general smoothness and evenness of road.

Ten points on general appearance of mile.

The judges shall credit any contesting mile with 10 points when the contestants on said mile shall have prosecuted a violator of the road law, in relation to driving on the road when it is wet and after it has been smoothed.

Rule 5—What is commonly known as a township road scraper or any other implement or implements may be used once immediately after entry for the purpose of shaping the road, but after that nothing but the King road drag, either home-made or purchased, but same must be built on the plans laid down by Mr. King, specifications for which can be had at Dr. Holke's office.

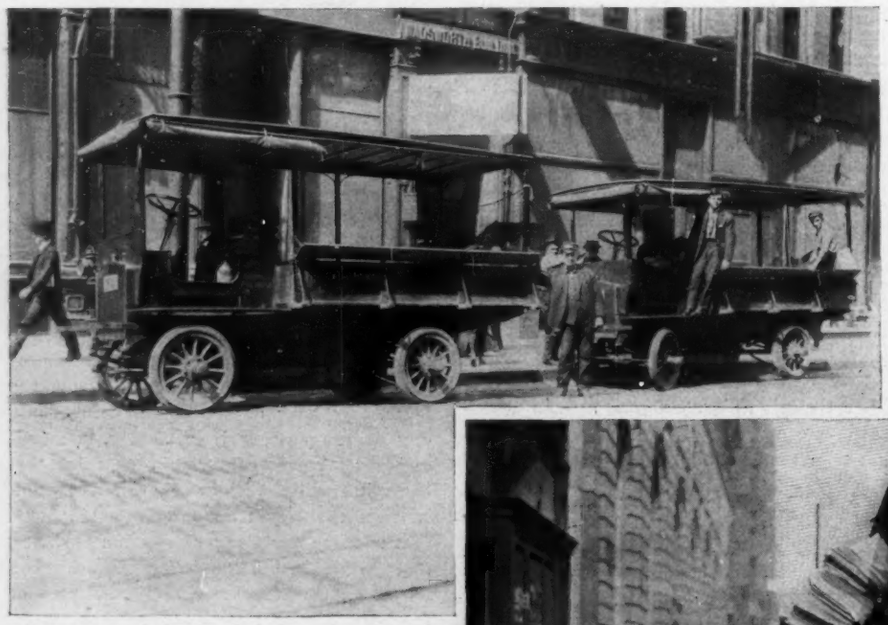
Information on this contest may be had from A. B. Hallock, A. H. Cowing or Dr. T. J. Holke.—F. A. S.

FARMERS AS MOTORISTS

Canton, Okla.—Editor Motor Age—The motor car is winning its way into the hearts of our farmer friends. In fact the prosperous farmer is taking front rank as a purchaser in many communities in the different states in which motor cars are having their largest sales. This is the natural result because of real merit of the wagon with a motor for locomotive power. The farmer finds he can go to town, even a long distance, 10 to 20 miles or more, in a few minutes, and return as quickly as he could catch up his horses from the pasture and get them properly hitched to his carriage. He also has discovered that he can go to church, to the city entertainment, and various places for pleasure or business, and return without accident or long delays. The only drawback, as a rule, to stop the motor travel, is muddy roads and no bridges. The farmer has found that with roads properly macadamized with gravel, ground rock, asphalt, or other material, the motor will carry its passengers to and from the farm, any hour of the day or night, any day of the year, swiftly, safely, economically and comfortably, rain or shine, because it furnishes its own power and light. In fact the city man can have his home on the farm many miles from his business, and go and return quicker than he can travel on the street car to the suburbs of the city, and not be annoyed with vexatious delays and stops, waiting in the storm, crowding in the street car with all classes of people. These happy conditions are taking people back to the farm with all its freedom and pleasures, but still retaining the convenience of the city. The future motor car will provide for the farmer attaching a belt to do his grinding, pumping, sawing wood, and other purposes for which a motor is needed. The farmer has more uses for the motor car than the city man. He has to travel farther to do his trading, to attend church, and social events, and does not have the benefit of the street cars. The future motor will plow the land, plant and harvest the crops, and deliver them to market.—James N. Powers.

The Realm of the Commercial Car

PUBLISHERS of daily newspapers appreciate the advent of the motor car probably more than most business men, for the motor truck represents to them what they are most striving for—speed, and speed means a saving of time, the main essential in the distribution of the papers in a metropolitan city where long hauls are necessary and where most of the boys do not go to the main office to get their supplies. Chicago is one of the cities which is just awakening to the possibilities of the motor truck in the way of distributing newspapers over a large area and two of the evening publications are now using motors for this purpose—the Daily News and the American. Both are well satisfied with the showing made and it is more than probable that each will increase its fleet before long. The Daily News has four 3-ton Lambert trucks, while the American has just installed three 1,500-pound Randolph delivering wagons which are just completing their first month of service on the busy streets of big Chicago.



DAILY NEWS TRUCKS

The Daily News purchased a Lambert truck in November, 1907, and for a year averaged 34 miles a day with it. This taste of rapid delivery encouraged the News and the first of the present year it purchased three more of the Lambert trucks and also secured its own garage, locating at Prairie avenue and Twenty-ninth street. At the present time these three trucks are doing daily duty, but the News is not as yet committed entirely to the motor service, claiming that it is still experimenting. Not a horse has been gotten rid of since the advent of the trucks, the circulating department claiming that the motor truck has not as yet demonstrated to its satisfaction that it can be depended upon for daily service without a hitch. The department cannot take any chances of a breakdown, it says, which would seriously cripple it in its work of distributing the papers to the wholesalers.

Delivering Daily Papers

The service of the News differs from that of the American in that the News uses its trucks for long hauls and big orders, while the American makes many stops at street corners to supply boys. In other words, the News uses its trucks as a trunk line to feed its outlying branches. The News has three sections of the city to cover—north, south and west, the north going as far as Evanston, to which point it used to be the custom to send the papers by express. Each of the News' trucks makes two trips a day, both in the afternoon. The north side truck starts at 2:30 each afternoon for Evanston, 13 miles, carrying 9,500 papers, which weigh about 3,600 pounds when the paper is a twenty-eight-pager, which it generally is. On the way up to Evanston the truck makes four stops and still it makes Evanston, 13 miles, in about 50 minutes. This is on the 5-o'clock edition run and the trip over the truck returns to the News office for its second run, on which it carries sporting extras, and goes south with them. On this, starting at about 6 o'clock, it makes a 40-minute run to the outlying stations, covering 8 miles and making ten stops.

The west side truck covers 30 miles each day on its two trips, carrying 8,000 papers on its 5 o'clock edition run and 4,000 of the sporting extras. On the trip it makes at least five stops, finishing at California avenue and Lake street, from which point it returns to the garage on the south side. The south side truck carries 21,000 papers on its two trips—13,000 on the 5 o'clock and 8,000 on the sporting extra, covering in all 34 miles.

The News uses its horse-drawn vehicles in the outlying districts, the trucks being utilized to convey the papers to points where the drivers of the horse-drawn vehicles can get their supplies, thus doing away with the necessity of making the long trips downtown, which means great loss of time. It is figured that the south side truck does the work that four horse-drawn vehicles used to do and that there is a saving of 15 minutes over the old service on the time of four wagons. The north side truck saves at least 30 minutes over three wagons, while the west sider shows correspondingly well.

LOADING ONE OF THE NEWS' LAMBERTS

Considerable saving in the cost of maintenance has been effected by the News through its establishing its own garage. Gasoline and oil now are bought at wholesale, while the garage itself costs a comparatively small rental—$30 a month. In addition to the three drivers a mechanic is employed to look after the trucks, it being his duty each night to inspect them and make such repairs and adjustments as are necessary.

The American formerly used four touring cars for its delivery, but the recent fire at Weber's garage destroyed these old machines, and so a month ago the American purchased three 1,500-pound Randolph delivery wagons equipped with 22-horsepower two-cylinder double-opposed motors. Friction drive is used. The gearing on each is three to one and a speed of better than 20 miles an hour is claimed. Solid tires are used, the front wheels being 34 inches and the rear 36 inches. Chain drive is utilized.

Strenuous work, indeed, do these little machines, each averaging 90 miles a day. The American issues nine different editions a day and the three Randolphs are used for each edition, starting in at 9 o'clock in the morning and finishing at 8 o'clock at night. Each trip averages 10 miles—5 miles out and as many back. Unlike the News' service, the American uses its delivery wagons to leave papers on the street stands on the way out to the turning point, it figuring that each car will average forty stops to the trip. While no formal estimate has been made as yet to the expense of operating, it is declared that the average gasoline consumption per day per car figures 12 gallons, while each machine uses 1 gallon of oil. Being comparatively new, these cars are well lubricated and probably the oil supply is a trifle generous at the present time.

Each one of the motor delivery wagons can carry 6,000 twelve-page papers, it being estimated that seventy-two pages make a pound. The motor fleet displaces six one-horse vehicles, and of course their drivers and in addition forty bundle boys. The duty of the latter is to carry the papers on street cars and on elevated trains to their destination at the stands of the wholesalers. This of course is comparatively slow work when the speed of the motor is taken into consideration. On each of the motor wagons are a driver and a bundle boy who throws out the papers at the stands and collects from each wholesaler. These chauffeurs are graduates from the horse-drawn vehicles, having been taught the art of driving a motor wagon. They belong to the union and are paid union scale—$22 a week, while the helper draws about $6 a week.

Horses could not do more than half the work accomplished by the motor wagons, it is declared, and the ground covered in a day by these machines is considered a wonderful performance when it is remembered they are not permitted on the boulevards, but have to take their chances on the traffic-crowded streets. Great consideration is shown them, however, and they slap-bang through the loop district at a lively gait. The chief and about the only complaint the American's circulation department has to make is on the skidding propensities of the solids, it being deemed impractical to use chains. The wet cobbles are particularly treacherous and it is found to be no easy task to turn out of street car tracks. When the motor wagons first were put in service several propellor-shafts were broken, but since then the Randolph people have substituted another metal and now there seems to be little trouble mechanically.

As soon as the American has had a chance to figure out results it is its intention to put on ten more of the Randolphs and to establish its own garage. At present it is stabling its machines in a public garage, paying full rates for everything.

DRIVERS INVESTIGATED

The Taxi Service Co. of Boston, which operates a system of taxicabs in the Hub, has been investigating the manner in which some of its drivers have been tampering with the meters recently, and so detectives were employed to ride in cabs and secure evidence. As a result four drivers were arrested a few days ago charged with larceny. The company claims that it has lost something like $20,000 since it established its service in Boston. It is claimed that the men were furnished keys to the meters and taught how to place them back so they would not show the total mileage recorded. Then the money corresponding to this was kept from the company. The four men who were arrested were arraigned in court and their cases have been continued until next week. Other arrests may follow, for the company is determined to put a stop to this practice which has robbed it of much of its profits in the taxicab business.

THE AMERICAN FLEET

RANDOLPH MOTOR WAGONS IN FRONT OF AMERICAN OFFICE

TWO CHADWICK MODELS

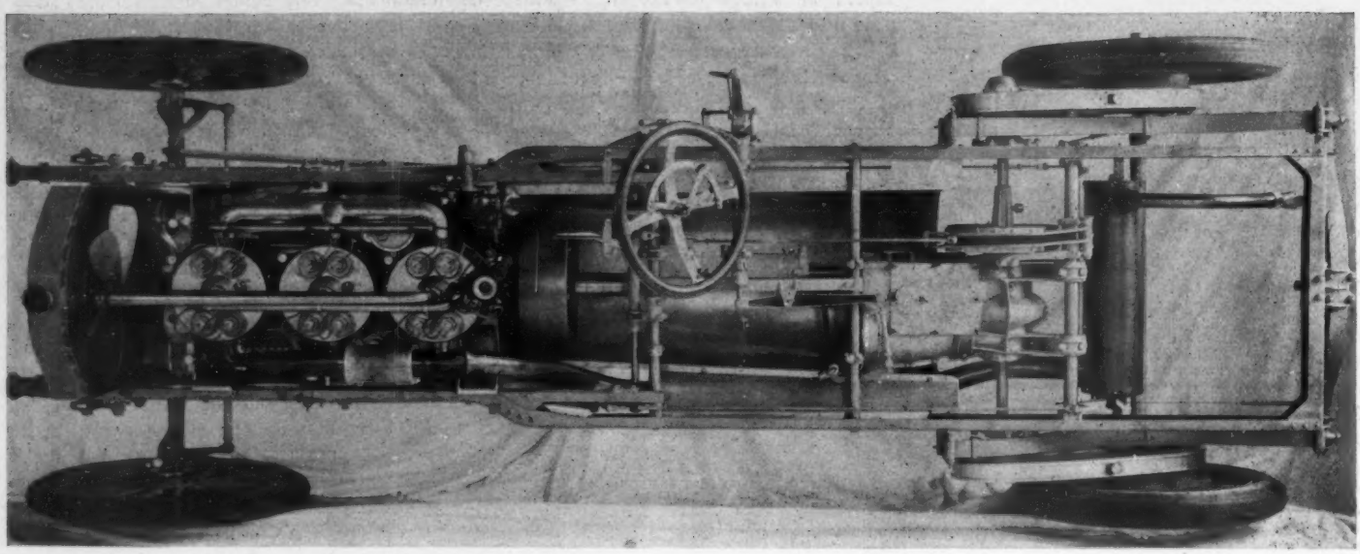


FIG. 1—TOP VIEW OF CHADWICK SIX-CYLINDER CHASSIS

DURING the present season and for next year the Chadwick Engineering Works, Pottstown, Pa., is manufacturing nothing but six-cylinder cars, bringing these out in two chassis sizes—one with 112-inch wheelbase for runabout and racing bodies, and the other with 130-inch wheelbase intended for touring, tourabout and limousine bodies. Upwards of a dozen changes have been made in these cars during the present year, some of which are important, others not. Before enumerating these alterations it will suffice to state that the great Chadwick characteristics are retained; namely, the use of copper waterjackets of the cylindrical type, one for each twin casting; and, second, continuation of chain drive with chains inclosed in oil-tight cases. Foremost in the category of improvements comes the adoption of an expanding band clutch which supersedes the conventional cone type heretofore used. This clutch, illustrated in Fig. 5, consists of an expanding part E, leather faced, and which is expanded through a rack R which operates the pinion P on the radial shaft V. On the outer end of this shaft and within the housing H is an eccentric roller which, when the pedal P is pressed forward to disengage the clutch, contracts the member E from the flywheel F, and when the pedal is released a coil clutch spring, carried within the sleeve S, rotates the shaft V in the opposite direction, expanding the band E. One of the most important features of the expanding band E is that it is not unlike a demountable rim on a car wheel, in that it can be removed by unfastening three nuts and put back again without interfering in the slightest with the adjustment of the clutch. This expanding rim is carried on an aluminum spider. The demountable feature is used so that should the clutch be slipping it can be quickly removed, cleaned, oiled and scraped.

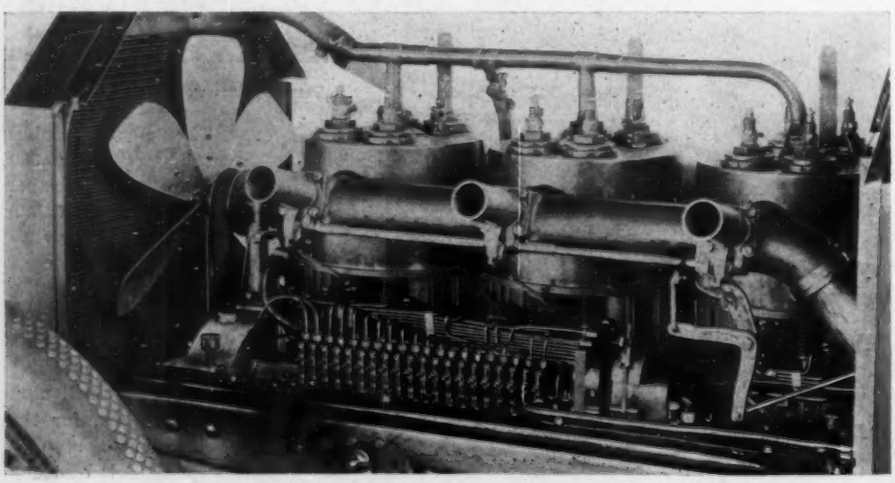


FIG. 2—CHADWICK OILER ON LEFT SIDE AND GEAR-DRIVEN

The remaining changes are not of so great moment and are briefly as follows: A honeycomb radiator supersedes the cellular type of former years; the oiler is now driven by gear through shaft with Oldham coupling instead of through a flexible shaft, and is located on the left side of the engine; the exhaust manifold is increased in size; a new steering gear of the combination screw-nut-and-rack type is used; the gear shifting lever has an automatic lock, and the pedals are adjustable to suit the comfort of the driver; in connection with each front spring is what is termed the safety link, Fig. 7, in which L is an extra metal piece attaching at its forward end to the spring eye bolt E, and at its rear end hinged to the spring clip F, this strip not assisting the spring in doing its work, but should the spring break it holds the front axle in place and prevents its being pushed backwards under the car; the drive chains are chrome nickel steel; copper water pipes are used on the motor; brakes are increased in size and made quickly adjustable; bodies are larger; and the timing of the magneto is so arranged that the time when the current is broken in the breaker box is always at the point of greatest current intensity.

The Chadwick motor, with its 5 by 6-inch cylinders, has a formula rating of 60-horsepower, but is claimed to show much in advance of this. The leading characteristic of this motor has always been the peculiar design of copper waterjacket, the jacket for each twin cylinder casting being not unlike an inverted copper pail entirely

covering the upper part of the twin casting, and with its lower end secured by a coned ring forming a water-tight joint. This form of jacket allows a particularly large water space, not only around the cylinder walls but also around the valve chambers and over the cylinder head. Each casting carries opposite chambers for containing intake and exhaust valves, these being operated by separate camshafts inclosed within the crankcase. In the manufacture of the camshaft special care is taken. The cams are retained by keys and spacing sleeves, and besides being hardened each is ground to a desired contour by grinding machine regulated by a master cam, the object of this being to insure the desired cam contour for all intake and all exhaust valves. The construction of other parts in the motor is similarly looked after. Each piston, connecting rod and wristpin group is balanced with the other groups so that scarcely an ounce difference in weight exists among the six groups used. To prevent wear the hollow wristpins are of hardened steel ground all over. The crankshaft is a chrome nickel steel forging of the standard six-throw type and carried on four plain, plastic bronze bearings, the two center ones supported from the upper half of the crankcase, but the end one carried in the lower half of the case. The crankcase, heavier than previous models, in an aluminum casting made in halves, the upper half with four channel-section integral arms for supporting on the frame and furnished with a unit dustpan. The lower half serves principally as an oil reservoir. All of the timing gears, inclosed at the forward end of the crankcase, are of hardened steel and operate in a grease bath.

Lubrication of the Chadwick motor is well illustrated in Fig. 2, in which a fourteen-feed mechanically-driven lubricator, located on the left side, cares for practically all of the parts. Of the fourteen leads six go to the cylinders, four to the crankshaft bearings, three to the compartments of the crankcase, and one to the transmission. The lower connecting-rod bearings are oiled by drilling the crankshaft and mounting on the shaft copper rings which catch the excess oil from the bearings and deliver it by centrifugal force to the crankpins through the drilled shaft. Wristpins are lubricated by the oil to the cylinder walls which has an opportunity of flowing through the hollow pin.

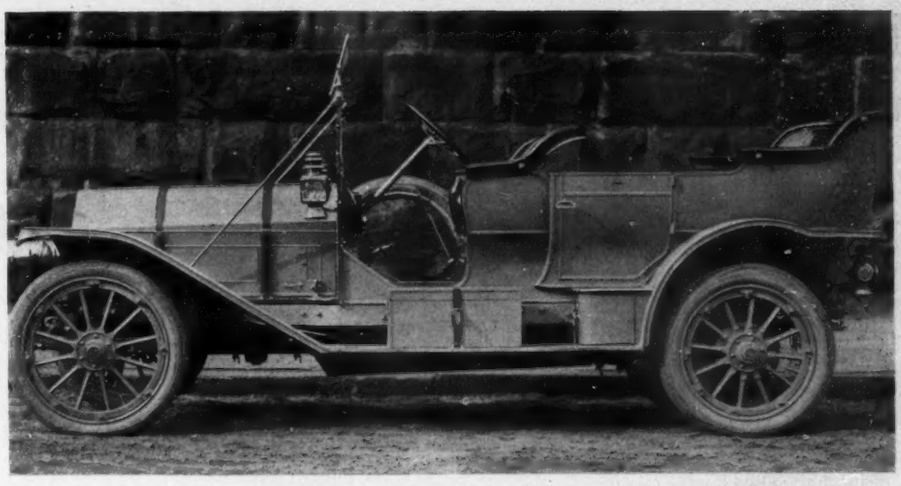


FIG. 3—ONE MODEL CHADWICK CAR BODY

A double ignition system is fitted with two sets of plugs, one above the intake, the other over the exhaust valves. Those over the intake valves are furnished with current from a high-tension Bosch magneto; and the other set is supplied from a set of dry cells through a single-unit vibrating dash coil and distributer carried on the top of a vertical shaft at the rear of the motor. The spark advance in the distributor is made without rotating the distributer part, thereby leaving the high tension wires stationary. This is accomplished by a divided vertical shaft. Attached to one part of the shaft is a sleeve with a helical slot, and in the other part is a cross pin the ends of which rest in the slot. By moving the sleeve the relation to the upper part of the vertical shaft with reference to the lower part can be altered, and thus the advance or retard of the spark as desired is affected. The spark variation of the magneto is similarly accomplished. The magneto is secured by a metal strap passing over the top of the magnets and secured by wing thumb nut to a hinged rod, there being a leaf spring furnished to automatically hold the wing nut in any position. This simple fastening in combination with an Oldham coupling in the shaft allows of removing the magneto without recourse to tools of any nature.

The cooling system of the motor embraces the water circulation system, assisted by a belt-driven fan carried on two annular bearings. The fan takes its support on a vertical post through which is threaded a central cap screw and by the turning upward or downward of which the fan belt adjustment is secured. The supporting standard is split and grips the

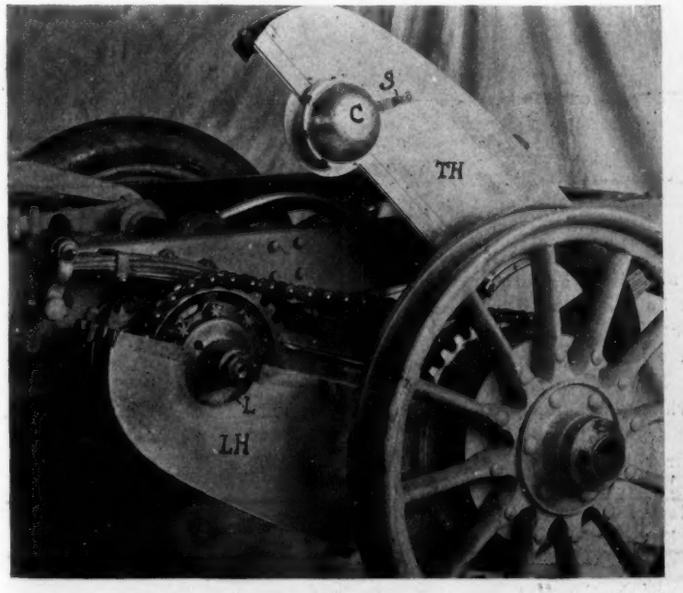


FIG. 4—CHADWICK CHAIN CASE

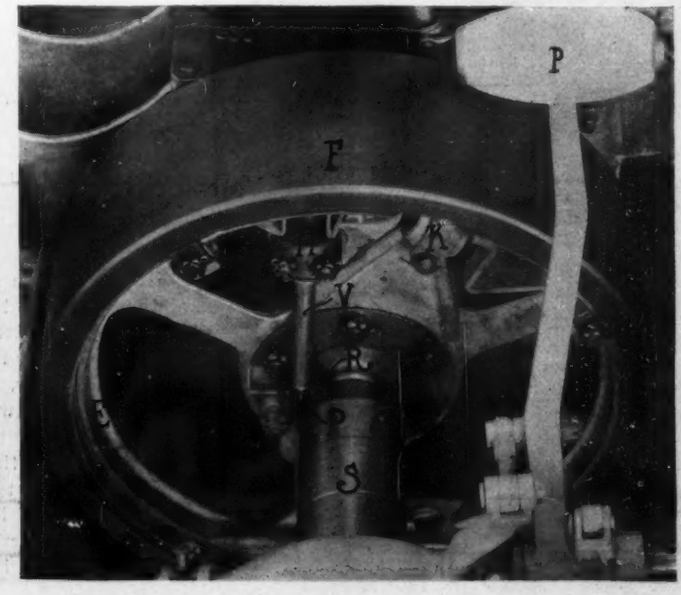


FIG. 5—CHADWICK EXPANDING CLUTCH

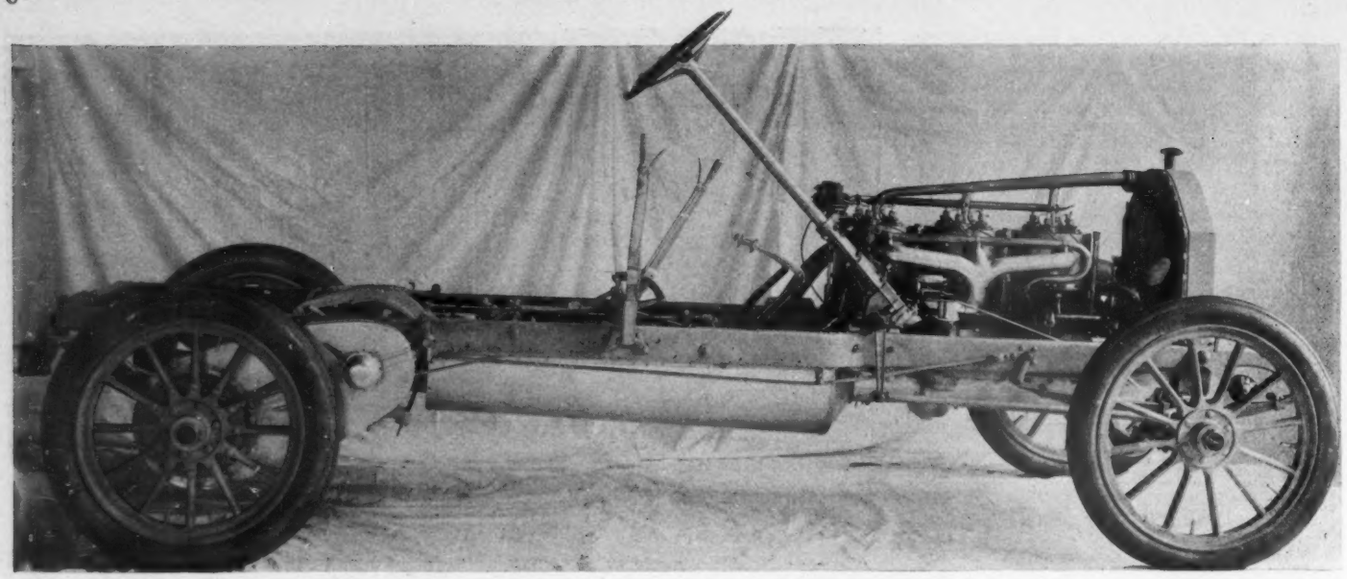


FIG. 6—SIDE VIEW OF CHADWICK SIX-CYLINDER CHASSIS

post by means of a pinching screw. The honeycomb radiator is tall, but comparatively shallow and water circulation is by centrifugal pump. The feature of the pump is the use of a star wheel adjustment on the stuffing box, which allows of turning the wheel with any tool and thereby maintaining a tight box.

Carburation rests with a Chadwick-designed carbureter, in which the piston auxiliary air valve is regulated by a diaphragm. A sight glass on the float chamber shows the level of gasoline. Every change in the throttle varies the needle valve, so there is direct control between the mixture and gasoline. Hot air is piped from the exhaust manifold and an adjustable slide in this piping allows of varying the proportions of hot and cold air at any time. A feature of the exhaust manifold is a set of valves whereby the exhaust can escape direct through openings in the side of the bonnet instead of passing rearward to the muffler.

Of primary importance in the Chadwick transmission system is the inclosing of the chrome nickel drive chains in cases, a custom which has been followed by the Chadwick company for some seasons. Fig. 4 illustrates the chain case open, the top half TH contains for this season an aluminum cap C which covers the end of the jackshaft hub, and when this cap is screwed up it embraces a lip L on the lower half on the chain case thereby securing the halves together. A spring S prevents the cap C from unscrewing. These chain cases are grease tight and the chain adjustment can be made without interfering with the case due to the jackshaft passing through slotted openings on the inside of this case.

The Chadwick transmission is continued practically the same as last year, and is characterized by having a bevel pinion on the rear of the mainshaft as well as one the rear end of the countershaft, and the employment of two bevels on the jackshaft. This double-bevel arrangement affords direct drive on high speed and on intermediate speeds the drive is through one set of spur gears from the main to the countershaft, and thence direct from the countershaft through bevels to the mainshaft. Chrome nickel steel gears are used throughout and both shafts are supported on annular bearings. An alteration in the gear-shifting mechanism is that the change-speed lever, Fig. 8, carries an automatic lock R which engages in the slots in the quadrant Q, this lock making it impossible to go through a gear without releasing the ratchet lever at the grip end of the change-speed lever. The ratchet is, however, automatically released as the change-speed lever is moved forward on the quadrant and snaps into the next gear shift notch. This control gives a semi-selective operation with the reverse obtained by a lateral movement of the lever. The jackshaft which is incorporated within the gearbox at the rear is additionally supported by brackets on the side members of the frame.

The Chadwick running gear embraces its new steering mechanism, which includes a steel worm on the base of the column carrying the 19-inch steering wheel. Surrounding the worm is a bronze nut provided with a rack on one side to mesh with the toothed sector on the shaft carrying the radius arm. Ball thrust bearings are fitted in this steering gear and the gear may be adjusted by removing the side plate, which gives access to the adjusting nuts. The car frame is of chrome nickel steel construction provided with truss rods

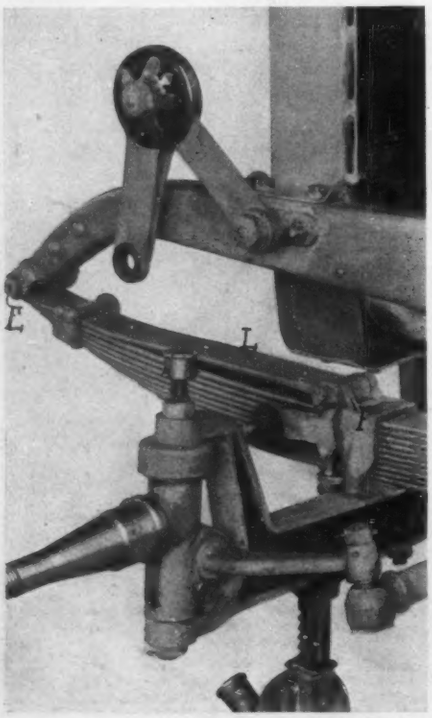


FIG. 7—CHADWICK SAFETY LINK

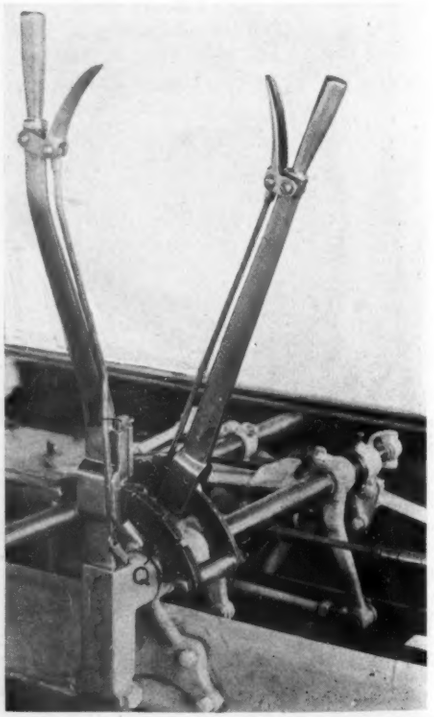


FIG. 8—CHADWICK GEARSHAFT QUADRANT

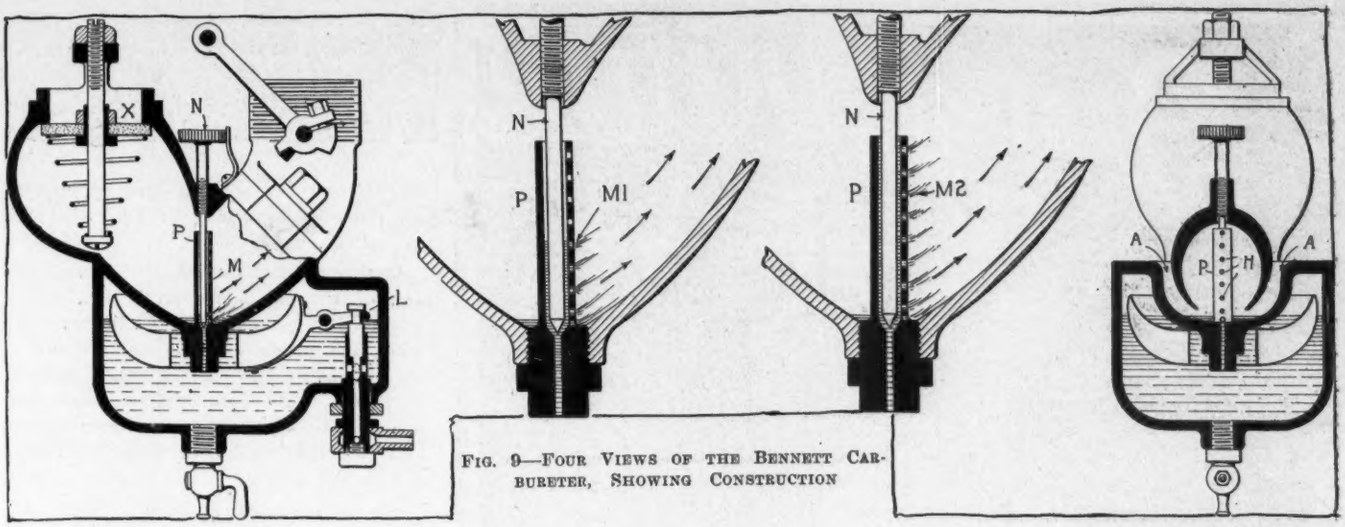


FIG. 9—FOUR VIEWS OF THE BENNETT CARBURETER, SHOWING CONSTRUCTION

of the same material. The side members are offset at the dash. Front and rear axles are I-beam forgings of chrome nickel steel with tensile strength of 130,000 pounds. A platform rear spring construction is used. The brakes are located on the rear hubs and on the jackshaft. The jackshaft brake is of the band type operating on a drum wheel on the right half of the shaft. The wheel is 14 inches in diameter, with 3-inch face, and provided with cork inserts. The clamping band consists of an upper and lower shoe, the lower shoe resting upon a support at which time the upper shoe is pressed out of contact with the drum by a spring. The emergency brakes on the rear wheels are metal-to-metal expanding type operating in 12 by 12-inch drums. Felt washers are provided to protect the drums from dirt. These brakes have an external adjustment.

FRENCH SHOCK ABSORBER

An exceedingly simple and efficient type of shock absorber has just been placed on the French market under the title of the Sphinx, and adopted as a standard equipment for all cars of one of the leading French makes. The apparatus consists of two cylindrical boxes, one of which is bolted to the side member of the frame, and the other, with lever integral with it, forming a cover free to pivot round the fixed member; the two are attached by means of a simple type of bolt and nut forming the axis of the pivoting member. The fixed box contains three concentric rings, each one lined with felt and a steel spring forming an eccentric. On the pivoting member are three wedge-shaped studs fitting into the grooves formed by the rings. When the car is at rest the studs are lodged in cut-away portions of the spring and felt lining, with just sufficient play to prevent them coming into operation for slight oscillations of the chassis. An increased movement of the frame in relation to the axle causes the studs to be forced into the grooves formed by the rings, and the further they travel round the greater is the resistance, thus, of course, tending to eliminate violent oscillations of the chassis.

THE BENNETT CARBURETER

The Wilcox-Bennett Carbureter Co., Minneapolis, Minn., manufactures a conventional type of carbureter, which differs, however, in that the nozzle is a standpipe P, Fig. 9, with a series of openings H at one side, so that with greater motor speeds the gasoline rises from this standpipe and escapes from two, three, or perhaps all of the openings H, whereas at slow speeds it escapes from but one or two. Diagram M shows the gasoline escaping through some of the base openings at slow speeds, M1 shows it escaping from half of the openings at half speed, and M2 shows it escaping from all of the openings at full speed, during all of which time the gasoline level in the float chamber remains at the point L. The escape of gasoline throughout the entire height of the standpipe P is made possible by having the part of the needle valve N within the standpipe of smaller diameter than the pipe, thereby leaving a circular space for the gasoline to rise in.

FIG. 10—SPHINX SHOCK ABSORBER

The air control of the carbureter is through an auxiliary air valve X, under spring tension. The main air supply for the low speeds is through opening A, Fig. 9, at which time the auxiliary valve is closed. At half the motor speed the auxiliary valve is partly opened.

MOTOR CAR LITERATURE

Charles E. Miller, New York, N. Y., has a 240-page catalogue in which is listed and illustrated his complete supply-house line. The list includes various types of Brampton, Whitney, Baldwin and Diamond chains; all types of sprockets, steering gears, brakes, shock absorbers, transmissions, carbureters, electrical parts, including coils, plugs, switches, magnetos; gasoline storage systems, lubricants, tools, tire hose, tire pumps, tires, and, in fact, everything that is pertinent to motoring.

The first 1910 literature received is a four-page folder illustrated and giving specifications of the Packard eighteen and Packard thirty cars.

The Brown & Sharpe Mfg. Co.'s 1910 catalog of machinery and tools is a 3½ by 6-inch paper-covered volume of 550 pages, containing full quotations on all tools and machinery manufactured.

The Rider-Lewis Motor Car Co. is circulating an eight-page booklet containing illustrations and specifications of its four and six-cylinder cars.

The New York and New Jersey Lubricant Co. is mailing a booklet on Motorol, a new cylinder oil which it has brought out. The booklet goes into details on this oil.

The April Bulletin of the Automobile Club of Philadelphia contains a road route from Philadelphia to Collegeville and return, the round trip distance being 80 miles.

The Buckeye Jack Mfg. Co., Louisville, O., has a combined catalog and price list of parts, the upper half of each page being a catalog describing, illustrating and giving specifications of the jacks, and the lower half containing a list of parts with prices as well as illustrations.

PRESIDENT TAFT IN WHITE STEAMER AT CHARLOTTE, N. C.

Tacoma Wants a Meet—A summer motor meet for Tacoma is now being considered by the Commercial Club of Tacoma.

Here's Enterprise—Twelve thousand dollars will be expended in building good roads in Sauk county, Wis., this season. All townships have appropriated funds for permanent highways.

Lucas County Sells Bonds—In touch with the good roads movement in their section the county commissioners of Lucas county, Ohio, have just sold $60,000 worth of road bonds and a number of roads will be improved.

Ohio Chooses Tag Color—Ohio has adopted tags painted in mahogany color on heavy sheet iron for the 1910 means of identification of motors. The tags for the present year are the same size and are painted blue. The 1910 tags will have the word "Ohio" and the year in addition to the serial number.

Making Road Plans—The Denver-Golden road commission, consisting of Governor John H. Shafroth, Mayor Robert W. Speer, the state engineer and the Jefferson county commissioners, met last week to prepare plans for the Denver-Golden boulevard, for which a legislative appropriation of $5,000 has been made. Offers have been received from people living along the route to furnish additional funds. The contract for building the road will be let June 9.

Goosman Reaches Minneapolis—Henry G. Goosman, Minneapolis agent for the Speedwell, last week completed a long, hard run from Dayton, O., to Minneapolis in a new 50-horsepower Speedwell baby tonneau car. The entire driving time was a trifle over 60 hours and the mileage was 907 miles, making a trifle over 15 miles for the hourly average of the trip. East of Chicago 21 miles were being made per gallon of gasoline, but west of Chicago this dropped to 12 miles per gallon, showing quite a difference in the character of the roads. The Diamond tires used were not touched during the entire run.

Fixing City Streets—The city of Monroe, Wis., which city now has an enthusiastic club, may use tarvia for surfacing its streets. The city of Waukesha, Wis., has applied tarvia to 26,000 square yards, and Superior and Beloit, Wis., have adopted the preparation for dust-laying.

Ferry For Motorists—Louis Olson, of Hudson, Wis., has established a ferry line across the St. Croix branch of the Mississippi river from Hudson to Lakeland, Minn., for the convenience of motorists. Hudson is one of the principal points on the best route from points in northern Wisconsin to Minneapolis and St. Paul.

Helping Fix Roads—Although owners in the vicinity of Lancaster and Platteville, Wis., are not yet organized, they have joined in an effort to improve the highways, and raised a fund to pay a number of workmen who are using a King drag with excellent results. A gratifying feature is that the farmers along the roads have voluntarily lent their aid and are personally thanking the owners for the good work.

Taft in Motor Car—Somewhere in the presidential mind there must lurk a liking for the White steamer, judging by an incident of Mr. Taft's recent visit to Charlotte, N. C. The local reception committee had cars by the score offered to it for the use of the distinguished visitor, but it was understood that it would be much appreciated if a seven-passenger White car could be obtained for the president. As there was no car of this model available in town the local reception committee arranged with the Atlanta branch of the White company to send such a car to Charlotte, and accordingly a seven-passenger White steamer, similar to Mr. Taft's own car, was shipped by express, all the expenses being paid by the local committee.

Chalmers Omaha's Guest—Hugh Chalmers, of the Chalmers-Detroit Co., was a guest of the Omaha Ad Club last week when 200 members of the club listened to an address by him on "Salesmen and Advertising." A dozen or more motor cars met Mr. Chalmers at the railway station and escorted him to the cafe where the dinner was given.

Carries House With Him—J. E. Nelson has hit upon the unique scheme of placing a portable house on his motor car. Nelson built the body on the machine. It has a folding bed and tables, a cook stove and cupboard, making a very comfortable little home. The weight of the machine is 3,750 pounds. Nelson will use it in traveling about the country.

Makes His Mark—Superintendent Fred H. Caley, of the state department, received an application from a farmer in the northern part of the state for a license to operate a car. Instead of being able to sign his name the applicant was compelled to make his mark. This illustrates the manner in which all classes of people are taking to the motor car.

Farmers Complaining—Many Buffalo motorists are resenting the claim made by a number of farmers that the latter are being driven from the Transit road in the vicinity of Lockport, N. Y., by reckless owners of cars. The agriculturists say that they now have to take bad roads to get their produce to the Buffalo markets. The residents claim that in Erie county, New York, the motorists run with care, but as soon as they cross the Niagara county line their cars move at the rate of 40 miles an hour, scaring horses.

Busy on Bay State Roads—The Massachusetts highway commission has mapped out a lot of work for the summer and already has started in to resurface some of the roads. There will be approximately 80 miles of highway resurfaced this year entailing an expenditure of about $250,000. The arrival of tar machines which proved so successful in England, and which the commission ordered some time ago, will facilitate the work very much. The work is not to be done in any particular section, for even Nantucket, which bars motorists, is to have some of its roads treated. The greater portion of the roads to come under treatment will be given a resurfacing with a bituminous road binder that has given the best results in previous experiments. However, the commission has not yet reached the stage where it is prepared to state what is the best material and so

some stretches of road will still be used for experiments. Close watch will be kept on the roads as usual and the results recorded carefully.

Uncle Sam Will Help—The federal government has signified its willingness to supervise the building of 1 mile of model highway near Richmond, Ind., on a part of the national road dividing Wayne county, Ind., and Preble county, O. The proposition is for the two counties to divide the expense and have a government expert superintend the work.

Lozier Posts Signs—The Lozier Motor Co., whose works are located at Plattsburgh, N. Y., the objective point of the scenic tour on Lake Champlain, are signposting the principal roads leading to Plattsburg; sign boards giving mileage and directions of the Lozier works at Plattsburgh being erected at the principal forks and cross roads.

Wants No. 11,111—Des Moines has an eccentric owner. This individual, whose name has not been divulged, recently purchased a car and insisted on having 11,111 for a license number. As there are not yet 9,000 licenses in the state he will have to wait until 2,000 more cars are sold. In the meantime, he declares, he will keep his car under cover, awaiting the issuing of the 2,000-odd permits.

Badgers En Tour—The Wisconsin Valley Automobile Club made its first tour on Memorial day, May 31, from Wausau, Wis., to Stevens Point, Wis. The Stevens Point members gave a dinner to the tourists. A motor parade, headed by Judge John C. Karel, of Milwaukee, state president of the Equitable Fraternal Union, will be a feature of the annual convention of this order at Neenah, Wis., on August 18 to 20.

Fire on Motorist—Motorists are at a loss to decide upon the cause of the antagonism that has arisen against them in the vicinity of Albion, N. Y. While A. M. Eddy was running his machine at a slow rate near Fancher, N. Y., he was fired upon by a man who stood in an orchard. The glass in the front of the car was struck by shot. Tires on a number of motor cars were damaged by running over tacks and nails on the Ridge road near where Mr. Eddy passed. Judson C. Curtiss, an Albion banker, was among the sufferers.

Toledoans Touring—With the coming of fine weather Toledo motorists are commencing the delightful little tours which the fine roads, beautiful scenery and points of interest, historical and otherwise, which so thickly besprinkle this territory make so popular. The entire Maumee valley is rich in historical features, as it was the scene of the final conflict which ended Indian supremacy in the Ohio country, and the entire valley is dotted with old buildings, old forts, Indian relics of one kind and another all commemorating the pioneers of Ohio. These points lie within easy reach of Toledo, some being not a dozen miles distant and the fine roads make motoring through this section a delight. The scenery throughout the Maumee valley is exquisite.

Cup for Coast Race—Guy Lombard, of Portland, Ore., has offered a handsome silver trophy valued at $1,000 for an amateur racing contest. Co-operation of California owners will be asked, and if successful will be pulled off in the near future. The present plan is to make it an amateur contest.

Elks Going Motoring—The Racine lodge of B. P. O. Elks will make an unusual convention trip during the latter part of this week, when the delegation of twenty-five will travel to Portage, Wis., about 100 miles, in five touring cars owned by members. The Kenosha lodge plans to attend the state convention in the same manner, headed by John M. Kehlor, of Kenosha, state president.

Massachusetts' Registration—One-tenth of all the cars registered in Massachusetts thus far come from Worcester county. With a revenue of $125,000 from registration this year the state will expend about $15,000 of it in repairing the roads of this county. Worcester dealers figure that fully 8,000 new machines will be sold in Massachusetts before July 1 and that the total registration for the state will be upwards of 25,000, an increase of more than 8,000 over last season.

Allegheny County Progressive—Allegheny county, Pa., is making great strides in road work this year. The county, including 750 square miles of territory, has 1,750 miles of road or more than 2 miles of highway for every square mile of land. The county commissioners recently sold $1,000,000 in bonds to carry on the work of improving the roads. Of the 1,750 miles already improved, 300 miles have been macadamized and it is planned to macadamize 300 more as rapidly as possible.

Improving Road Efficiency—George C. Diehl, chairman of the good roads board of the American Automobile Association, has been informed of the plans of the New York state highways commission to change the specifications for several highways in Erie county, New York. The proposed changes are calculated to make the roads withstand to better advantage much motor car traffic. In connection with these plans the suggestion has been made by some experts that the top or wearing surface of the macadam highway should be constructed with a bituminous binder. In that way, it is said, a resiliency is imparted which tends to add to the permanency and durability of the road. The fine material is therefore held in place and the dust nuisance is minimized. The expense of maintaining the highway is decreased. The bituminous binder will be used on a number of roads in counties of New York state. It is believed that this method of construction, together with the patrol system of maintenance and repair inaugurated by the New York state highway commission, will add very materially to the efficiency of the improved highways of that state.

After Bottle-Throwers—The latest source of worry to Buffalo motorists are the young men who scatter broken bottles along Delaware avenue. One youth who was arrested said he threw the bottles along the pavement to hear the motor car tires explode.

Paul Hoffman Injured—Paul Hoffman, of Chicago, who was to have driven a Pierce-Arrow in the Glidden tour, was seriously injured Monday while riding a motor cycle by being hit by a trolley car. He is now in St. Luke's hospital with a fractured skull and his condition is somewhat precarious. Hoffman long has been one of Chicago's best drivers in hill-climbs and reliability runs.

Will Macadamize a Pike—The Wood county, O., commissioners have just allowed a petition for macadamizing Otsego pike, a much-traveled road, 7 miles in length. When this road is macadamized it will afford a stone pike to Bowling Green from Hoytville, Custar and Milton Center, as it will connect with six other stone roads. Wood county is much favored by motorists, especially from Toledo and vicinity.

Mexican Business—The Mexican Daily Herald states that "notably, among importations, the motor car demand in Mexico is shown to be on a steady increase. That the taxicab system has proved a success is shown by the fact that a number of new taxicabs for Mexico City are now en voyage and it is the intention of the company operating them here to increase the number until they will form a formidable competition with the blue-band coaches."

Sociability Run Booked—A sociability run is to be given by the Times, of Washington, D. C., on June 19. Great Falls, about 16 miles up the Potomac river, will be the objective point and Vice President Sherman, who has become an ardent motorist, has consented to set the time in which the run shall be made. No entrance fee will be charged and it is expected that more than 200 private owners will compete for the handsome prizes that have been offered.

New Road Sign Campaign—Five thousand doubtful points on public highways which cause confusion to motorists will be supplied within the next few months with durable road signs, properly labeled with directions, by Thomas B. Jeffery & Co., makers of the Rambler. The signs are 12 by 24 inches in size, made of sheet metal, bearing the inscription "Rambler Automobiles" and below this a white space in which is painted the name of the town and the distance with the direction indicated by an arrow. No other advertising matter is allowed to appear on the sign put out by the Rambler people.

ELECTRICAL DEVICES USED IN MOTOR CARS

By Thomas J. Fay
Part IX

PERMANENT magnets are, relatively speaking, of low permeability, due to the nature of the materials used, in which high retentiveness is the important consideration, and it is a misfortune, perhaps, that the two properties are antagonistic to each other to a considerable extent. The lifting power of permanent magnets, then, will not be nearly so much as would be the same power in the same material in the annealed state, or of other material such as would show little or no indication of hardening as a direct result of quenching from even very high temperatures. When it is claimed that a permanent magnet will lift a keeper equal in mass to its own weight, account must be taken of a number of details that must influence the situation. In the first place the magnetic leakage will increase as the length of the magnet increases, and the leakage will also depend upon shape. If the magnet is long the leakage will be great in comparison, and this leakage must be subtracted from the total of the magnetic flux, while the weight of the magnet will increase in direct proportion to length. The time must come when the magnet will be so weakened due to leakage and the weight will increase due to length that it will be quite out of the question to expect it to lift a keeper of any great weight.

The lifting power of a magnet, considering the area of the same, is in some measure an indication of its quality neglecting retentiveness, which is a property that can only be determined in time. On the other hand, the length of the airgap of the rotor and the area of the polar horns will have much to do with the performance of a magneto; and the armature reaction must be taken into account, especially if the armature is contrived with a high magneto motive force.

Types of Armatures

If the winding is directly on the rotor, as it is in very many cases, the airgap effect will be a minimum, for the reason that but two airgaps will be required, an illustration of which is given in Fig. 18, in which it will be observed that armature is wire-wound as indicated by D, and the airgap is indicated at C C C C. In this armature, which is of the laminated iron type, known as the Nilmelior, the central portion of the laminae are cored out leaving a rectangular space to accommodate the electrical condenser. The soft polar horns B B are faced off in such a way as to afford a resting place for the bronze cover at the top, and to enable the magneto to rest on the bronze base at the bottom. In this magneto, which is one of the most satisfactory to be had, the horseshoe magnets are in sets of three thus making each magnet quite thin, which is one way to assure that the metal will be good, and that the heat treatment will be effective. True, in magnetos of this

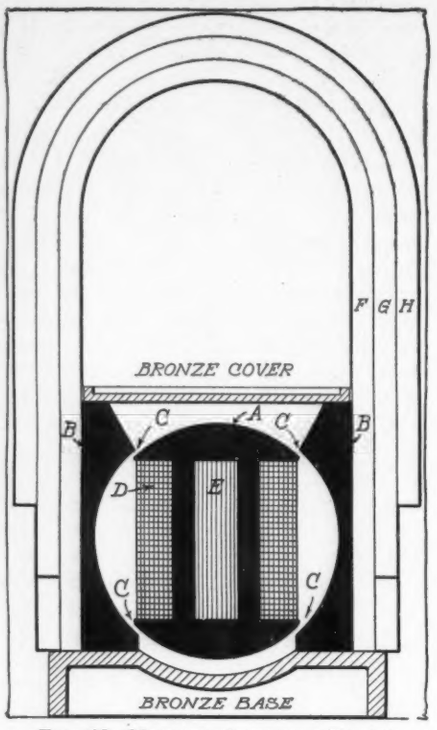


FIG. 18—MAGNETO ARMATURE DESIGN

type, it is necessary to have collector rings and in them there is ample chance of road trouble if the magnetos are not well made.

The bronze base cover, Fig. 18, might be of any other non-magnetic material, and in many cases aluminum is used for the purpose. At all events it must be non-magnetic for the reason that magnetic material would cause a magnetic short-circuit around the armature, and the result would be a very feeble if any armature result in practice. This question takes into account the relative permeability of magnetic and non-magnetic material, a detail that was adequately discussed elsewhere. In any case, in view of the damage that foreign substances and water will do to the windings, and to the collector-rings and brushes, it is very desirable indeed to provide covers, and that they should be well fitted is one of the specifications.

If it is important to avoid the use of a double airgap, the design, Fig. 19, will adequately illustrate the manner in which the task may be performed, in which it is shown that the windings W are in recesses in the polar horns, rather than in the recesses of the armature A. In this case the magnetic circuit is made and interrupted three times per revolution of the armature, and better yet, is a rotor in which there is no wire or other electrical connections of any kind. In this case the polar area is very limited for the reason that the polar arc in degrees is quite restricted, as it must be in view of three divisions, particularly since the diameter of the rotor is necessarily small in magnetic work. That it is an advantage of some moment to be able to avoid the use of wire on the rotor, and to do away with collector rings, brushes, etc., is a self-evident fact, yet the price that has to be paid for the convenience must be taken into account in the long run. Decreasing the area of the polar arc is equal to decreasing the total of the magnetic flux, and if the flux is decreased it is necessary to adjust some of the other factors to make up for the loss. Then the horseshoe magnets are not quite so advantageously placed, which is not an insurmountable difficulty, although it does detract from the efficiency of the magnetic circuit.

As Fig. 19 shows, it is not necessary to rotate the windings of the electrical circuit in order to generate an electrical current for the same result in the main as pointed out in the discussion of the principles of the magnetic circuit, will follow when the magnetic circuit is interrupted in such a way as to cause the magnetic flux to swell and recede with fixed periodicity. The time it takes the flux to die out is a measure of the quality of the material of the magnets, and as before stated it is an extremely important detail. On the other hand, the total of the magnetic flux must be adequate for the purpose, taking into account all the factors to satisfy the formula given for induction in armatures.

Still another and popular way of designing magnetos, with a view to avoiding the use of windings on the rotor, is shown in Fig. 20, which plan has the advantage of affording a considerable area of polar arc, while at the same time requiring the use of a double airgap. True, the airgap can be quite restricted, but this is also true when only a single airgap is used. In this case a sleeve of magnetic material is caused to rotate around the stationary core, and the action takes into account the principle involved when the magnetic circuit is interrupted. The illustration shows the windings W on the stationary core C, but this is a detail of design that can be altered to suit the designer, since the windings could be placed in recesses in the polar horns, as shown in Fig. 19 or in other ways.

Means of Spark Advance

Timing the spark in the cylinder to afford the desired results is necessary, no matter what may be the form of ignition, excepting in the cases in which it is the purpose to disregard the highest attainable economy in favor of simplicity, as in small motors used in taxicabs, and other work of a like character, in which the designers labor under the impression that they have a monopoly of brains, and it is the supposition that chauffeurs are free from such incumbrances so that they do not have to

bother about the spark advance or the economy that follows when the mixture is ignited at the propitious instant. In any event, the service in which the spark has not to be advanced is very limited, and as a rule magnetos must be provided with a suitable mechanism so that the spark may be advanced at the will of the operator. This in turn requires that the design be such as to lend itself to the plan, and it is unfortunate that some of the schemes are not so very good for the purpose.

Take for illustration racing and other speed cars in which the compression is relatively high and the motors are with such large cylinders that it is something of an effort for an experienced man to spin the crank, they can scarcely be looked upon as suitable when the magneto is so devised that the spark cannot be advanced and retarded to suit the conditions. In practice, then, it is necessary to discriminate between magnetos that do not provide spark advance, and the motors that will perform in a fairly satisfactory manner even if the spark is fixed. In other words, there is some danger of claiming that certain designs of magnetos are superior when, as a matter of fact, they are used with a fixed advance of the spark because it is mechanically difficult to do otherwise.

There is no denying the contention that any motor will deliver more power when the spark is advanced and retarded to suit the speed and the other conditions than will be true if the spark is held at some one angle of advance. In some cases it is the practice to retard the spark to crank the motor, which is a necessity in all cases involving a high compression and motors above 4-inch bore. If the compression is below 75 pounds per square inch—absolute—and if the bore is below 4 inches, it is not difficult for a man of fair experience and a little strength to store enough energy in the flywheel to crank against compression, even when the spark is advanced, and the compression is increased as a result of early ignition.

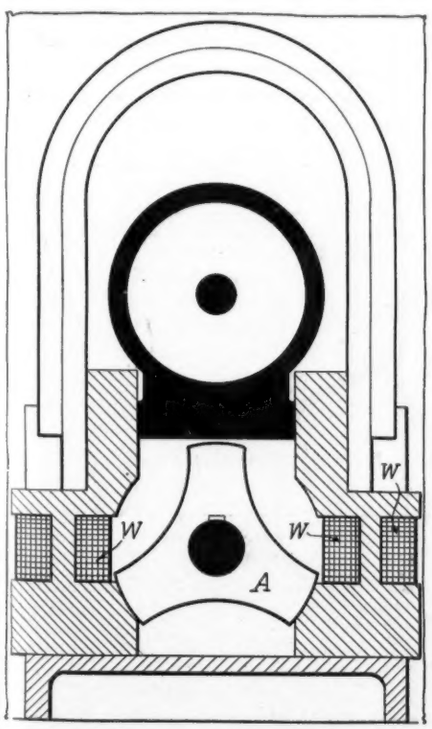


FIG. 19—STATIONARY MAGNETO WINDING

Governors Not Suitable

The required amount of spark advance, when a magneto is used, will depend to some extent upon the manner in which the armature core is made, and the materials entering into the same. If the core is of annealed Swedish laminated iron the effect of induction will be a wider variable, and the spark will have to be advanced more under certain conditions. With such a magneto, although it has admirable qualities in many ways, it is nevertheless more sensitive and it is more necesasry to provide for advancing and retarding the spark. Some designers advocate an automatic means of advancing and retarding the spark and they must take into account the curve of hysteresis, which is not a straight line, so that it is extremely difficult to contrive a means that will automatically advance the spark in a manner to produce the best result. If the automatic means is a governor, and the same is actuated by centrifugal force, it is not easy to see how the action due to speed changes can be made to conform to the curve of hysteresis, for the reason that the governor weights will obey the law with the result as follows:

Considering the simple pendulum governor it is not synchronous so that it does not revolve at a uniform speed for all angles of the arm and it cannot be used for the purpose of advancing and retarding the spark on that account, if it is true that the regulation must be in proportion to the speed, since the spark should be advanced in proportion to speed. The formula for hysteresis indicates that the hysteresis effect is proportional to speed, in that the hysteresis is proportional to frequency, although it is also true that this same phenomenon is proportional to the 1.6-power of the flux density. The flux density will not increase beyond a certain value if the magnetic material is suitably selected, and if the established density is that approximating saturation. The formula for hysteresis is:

$h = n B^{1.6}$

h=heat loss measured in ergs per cubic centimeter.

B=flux density in lines per square centimeter.

n=a constant, depending upon materials used.

If the hysteresis effect is taken as a measure of the lag of the spark, and it probably is the most suitable indicator, it is plain that the value of B must be maintained the same at all speeds of the magneto if it is to be expected of a governor that it will advance and retard the spark with certainty, taking into account the needs. Even then the question of the inflammability of the mixture will introduce a discordant note for the reason that the time allowed the mixture to burn will reduce as the speed increases, and it will be necessary to compensate for this by advancing the spark in excess of the amount that will just compensate for the lag due to magnetic sluggishness. But this should not be so difficult since the advance that will satisfy this phase of the problem will be a direct proportion to speed.

At all events it is plain that any governor that is placed to advance the spark must be so devised as to compensate for the inequalities as follows: The spark must be advanced as the 1.6-power of the flux density in the core of the magnet that induces a current in the secondary circuit of the sparking equipment; the spark must be advanced in direct proportion to the frequency; the spark must be advanced so that the time of burning of the gas will be constant or nearly so.

If the flux density does not increase, which will be true if the core is up to practical saturation, this phase of the problem will cancel out. The problem will still be complex because there is no form of governor that will perform in a manner to suit the curve that will result if the values are plotted, even assuming a fixed value for the flux density. In designing governors it is one of the fixed principles that the design must be for some one speed, yet motor car motors run at a wide variety of speeds. That there is a certain practical, allowable variation is not to be denied, and if the governor is properly devised it is likely that a certain degree of perfection will be realized.

Take for illustration, the governor, Fig. 21, in which the weighted springs A A revolve around the shaft S and fly out in

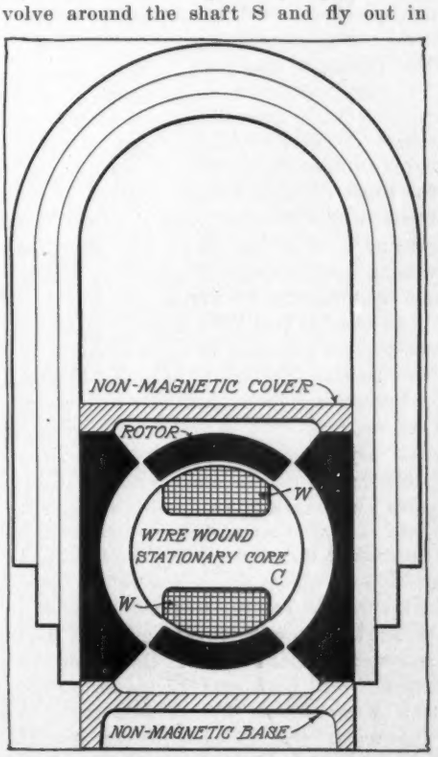


FIG. 20—ARMATURE DESIGN

PRACTICES IN FIXED IGNITION WORK*

Name of motor.	Fixed angle of ignition.	Type of motor.
Rochet-Schneider	20 degrees	24-horsepower
Darracq	21 degrees	10-12-horsepower
Vinot-Deguingard	27 degrees	12-16-horsepower
De Dion-Bouton	30 degrees	12-horsepower
Brouhot	30 degrees	12-horsepower
Unic	30 degrees	20-horsepower
Peugeot	31 degrees	
Sultan	32 degrees	9-12-horsepower
Renault	33.5 degrees	8-horsepower
Brasier	34 degrees	
Peugeot	38 degrees	18-24-horsepower 1908
Cottin-Desgouttes	38 degrees	18-22-horsepower
Cornilleau-Ste. Beuve	43 degrees	20-30-horsepower 1908

the manner as indicated. As the balls B fly out the sleeve C will slip on the shaft in an axle-wise direction and the pull rod will respond so that the spark advance crank will advance or retard in turn. When the motor is at rest the balls will hug the shaft and the spark should then be retarded an amount equal to 5 degrees as measured on the flywheel. If the springs A A are relatively weak, the balls will fly out readily in response to speed and the motor will speed up to some point such as will assure a fair measure of power, provided the check spring S1 comes into play to prevent the balls from entirely overcoming the weak springs A A. If the spring S1 could be contrived in such a way as to weaken as the speed increases the desired results would be achieved, but such is not the case, and all that can be expected of the spring is to check the springs A A after the motor has speeded up sufficiently to assure a fair measure of power. That much mechanical complication would result in any attempt to accomplish the desired end is one of the points that can be taken for granted, and in general practice it is the custom to rely upon the motorist to advance and retard the spark by hand rather than to have undue complication.

Best Timing of the Spark

In fixed ignition work the point of ignition should be that which will enable the motor to deliver maximum power if the motor is not too large for the purpose. The following is sufficient evidence of the diversity that obtains in practice, and in a measure it is an indication of differences in magnetos, although it is also an indication of differences in motors:

The test records were taken at random, and may be regarded as representative of variations as they are to be found in general practice. These tests are well worth examining at close range for the reason that they show some points in apparent contradiction to the other general statements made in relation to this important phase of magneto ignition service. In the cases taken it will be seen that the fixed ignition is not wholly a matter of speed of the motor, for the smallest motor has the least angle of advance, and it is well understood that the smaller the motor the faster it will go. Another glance at the table will disclose the greatest angle of advance of the ignition in the largest motor, in which the speed will naturally be the lowest, in all probability. This table goes to show that it is not possible to follow any fixed rule in a matter of this sort, and the reason that the angle of advance in fixed ignition work must be the greatest in the largest motor is due to the difference in scavenging on the one hand and to the distance the flame must travel on the other. In the smaller motors the area of valves is relatively greater and the conditions of scavenging are better. It follows that ignition will be more perfect and the spark will not have to be advanced so much in the motors that have better scavenging conditions, and the spark advance will not be the same in all makes of motors, although it is true that the laws of spark advance will be the same in the respective motors, the only difference being that for the respective motors, at their best power speed, the spark will not be at the same angle in each of them.

(To be Continued.)

*Report of Louis Lacoir in connection with his description of a device called the Larrad contrived for the purpose of determining the proper timing of motors. See Motor Age, October 22, 1908, pages 28 and 29.

WASHINGTON STATE ROADS

Tacoma, Wash., June 1—Governor M. E. Hay, who has recently been elected governor of the state of Washington, has announced he intends soon to take up and study the workings of the state road laws and state highway department.

"We now propose to collect from the people in direct taxes for state road construction some $800,000 a year, and it is up to us to show results commensurate with the sums of money expended," said the governor. "We ought to be able to accomplish a great deal in the way of road construction with $800,000 a year. There is no department of the state government which is more in need of good business management than the state road department and none which would be more benefited by the elemination of the political considerations with which it has been almost strangled. The eleventh legislature appropriated for road construction work a total of $1,594,000. At a cost of $5,000 a mile this would pay for the construction of 319 miles of permanent state highways, an average of 8½ miles to each county in the state. The money is raised in direct taxes and every property owner in the state will be assessed in 1909 and 1910 at the rate 1 mill on each dollar of assessed valuation for state road work.

"There probably is no way in which the state could spend the money of its citizens to better advantage and for their more immediate benefit than in the construction of good and permanent roads, but a large proportion of this money is being expended in an extravagant manner on impracticable surveys, through out of the way and unsettled portions of the state and for the benefit and advantage of private special interests. The indictment is a severe one, but the facts and specifications in support of it may be drawn directly from the biennial reports of the state highway commissioner, one of the most ardent supporters of the present system.

"The legislature of 1905 appropriated $13,500 for the purpose of 'completing' this road. This appropriation was contingent on each county contributing a portion of the cost of the portion of the road in that county.."

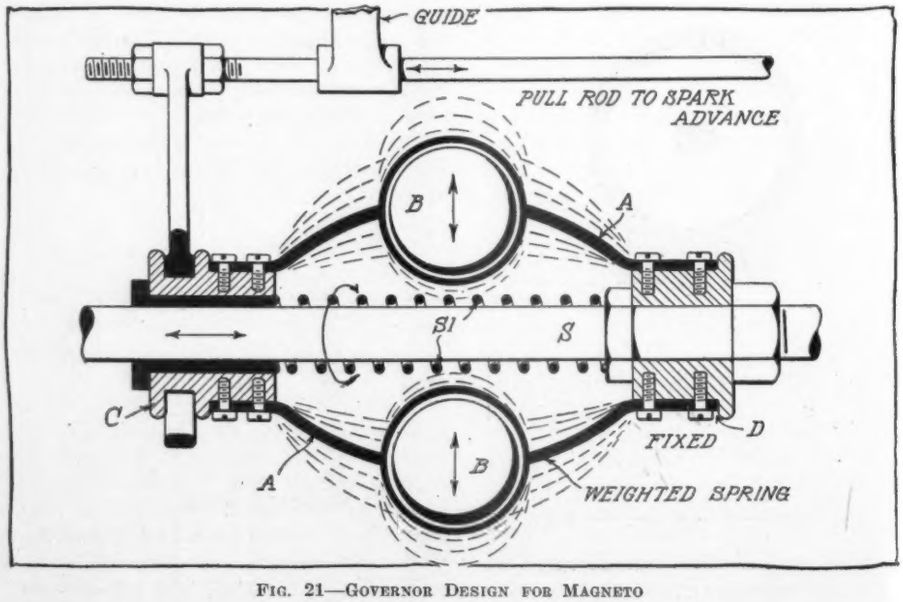


FIG. 21—GOVERNOR DESIGN FOR MAGNETO

The Motor Car Repair Shop

At the Club

GEORGE, I want to have my car thoroughly overhauled. Do you know of a good repairman, one who uses his head as well as his hands?''

''Why, yes—there's Henry, of the X garage, a good man, a conscientious worker and one who knows his business. He has overhauled my car twice in 3 years, and it is running just as well today as the day I got it.''

''Well, how did you come to have your car overhauled at the X garage; yours is an L car, is it not?''

''Quite right; but I was quite favorably impressed by this man Henry's ability as a repairman some time before I purchased my car; and it happened in this way: One Saturday afternoon Haskell invited me to make a little tour with him in his new X car on the following day. I accepted and as we entered the garage Sunday morning, this man Henry was there with an oil can in his hand, oiling up little things here and there, which Haskell had overlooked when putting the car in shape the night before. This done, he examined the tires; looked into the radiator; and being satisfied that everything was in running order, he bid us good luck and away we went.

''We had a fine trip till about 5 o'clock in the afternoon. We were on our way home, going along at a lively clip, with about 30 miles to go; when suddenly we began to slow up; there was a coughing and a popping in the carbureter, and the engine stopped. An examination disclosed the fact that the gasoline pipe leading from the main tank to the auxiliary tank had been broken and we apparently had lost all our gasoline. After thinking and talking the matter over for a few minutes; we decided that Haskell should stay with the machine and try to think of some way out of the difficulty, while I went to a farm-house, which had a telephone, to call up the nearest town and have a repairman come out to fix the pipe and bring a supply of gasoline. I managed to get the X garage on the long distance and told our troubles to this man Henry, who seemed to be always on the job. 'Well,' said he, 'just cut about 2 inches off the hose on the headlights, slip it over the ends of the pipe, and wrap it well with tape to make a good solid joint; then if you look under the driver's seat you will find a valve which governs the reserve supply of gasoline.' I did not know that there was a reserve supply in the tank and Haskell never thought of it. So, happy with the idea that we would be able to make the necessary repairs, and that we still had a fair supply of gasoline, I hurried back to the car. Looking under the seat, we found

FIG. 2

the valve, and the reserve supply safe. We then made the repair as directed, turned on the gasoline, pumped a little air into the main tank to force the gasoline into the auxiliary tank, and off we went. At the next town we replenished the gasoline supply. On examining our repair, found it to be in good condition, but not wishing to take any chances we decided to have the pipe more substantially repaired.

''We were on our way again at about 7:30 o'clock and would have been home by 9:00, had it not been for the fact that when darkness came on we had to drive

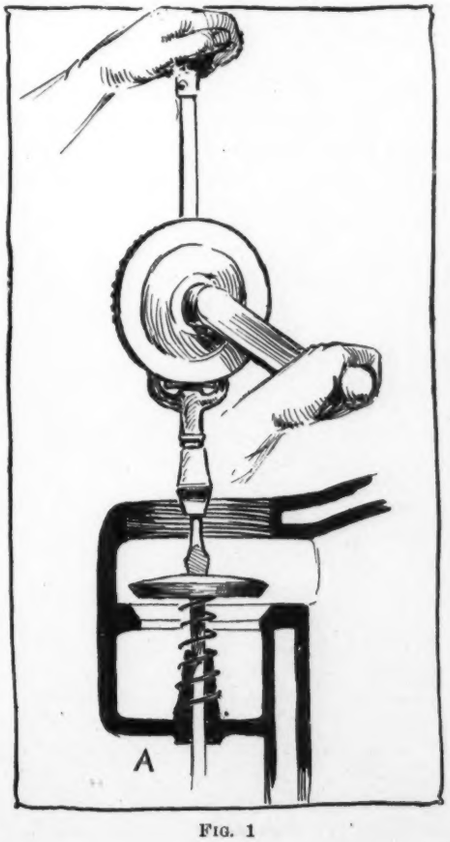


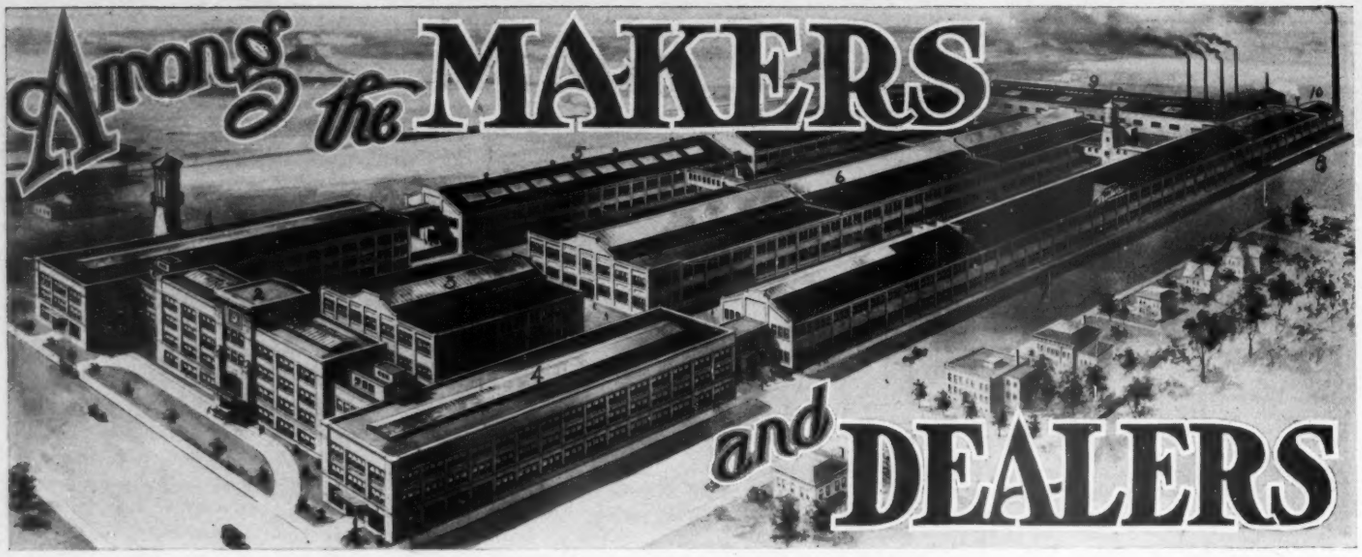
FIG. 1

extremely slow for several miles, because we had neglected to supply ourselves with matches, and were unable to light our lights until we secured some matches at a road house, almost within the city limits. Returning at last to the garage, we related our experiences to Henry, and on telling of our lack of means of lighting our lights he said, 'Why didn't you use your ignition system?' This we did not understand; so taking a small piece of waste, he wrapped it on the end of a stick and saturated it with gasoline. Then turning on the current, he found the live wire, disconnected it from the spark-plug, and held it off, allowing a stream of sparks to jump from the end of the wire to the top of the plug; and on bringing the saturated waste in contact with the sparks it burst into flame.

''I always have had a great deal of confidence in Henry since that day; he is the only man who has made any repairs or adjustments on my car, which I have been unable to make myself, and for the past 2 years I have had no trouble at all. Of course I know considerable more about my car now than I did the first year, but whenever I am up against it—me for Henry.''

When Grinding Valves

In many cases where much grinding is necessary, such as when the seats are badly pitted, or the head slightly warped, the method of using the breast-drill, as shown in Fig. 1, may be appreciated. Without the use of the spring A, the use of the brace and bit or the breast-drill would be found quite impractical, owing to the fact that as both hands are required to operate either one, it would be found very unhandy to be continually releasing the hold of one hand to lift the valve from its seat in order to distribute the abrasive or grinding material. This spring may be made as shown in Fig. 2, by sticking the end of the spring wire in the slot or hole usually found in the end of a valve stem, or by simply making it fast in the vise with the end of the stem, and then winding it around the stem, as illustrated. In winding a spring on a valve stem, it will be generally found that when removed from the stem the diameter has increased just enough to allow it to slip over the portion of the valve guide which projects into the valve chamber; if not, any piece of round metal or wood of a trifle larger diameter may be used. The tension of the spring should be just the same or a little less than the weight of the drill stock or brace and bit used, so that by just raising the tool a little the valve will raise also without the bit or grinding tool slipping out of the groove or holes in the head of the valve.



PEERLESS COMPANY'S NEW PLANT AT CLEVELAND.

1—Building for factory purposes and stock rooms. 2—Four-story office building. 3—Three-story assembly room. 4—Factory building, with factory office and city sales department. 5—Upholstering department and test rooms. 6—Paint and body department; assembly room, stock department and finished assembly. 7—Machine shops. 8—Receiving and shipping departments. 9—Foundry. 10—Power plant.

Sioux City Concern Growing—The Interstate Automobile and Supply Co., of Sioux City, Ia., has made extensive additions to its plant by establishing a vulcanizing shop. By the change, the building proper is now 50 by 150 feet in size, the second floor being 50 by 60 feet.

Columbia in Good Shape—It is stated on the best of authority that before long a complete reorganization of the Electric Vehicle Co. will take place. Nearly all of the claims have been settled up and acquired, which means that the controlling interests will begin with a clean slate.

Will Make Wheels—The Franklin Wheel Co., of Franklin, O., was chartered by the state of Ohio recently with a capital stock of $50,000 by J. J. Weisner and others. The corporation proposes to erect a large factory at Franklin for the manufacture of motor car wheels of every description.

Franklin Needs More Room—In order to secure more room in connection with its plant at Syracuse, N. Y., the H. H. Franklin Mfg. Co. has leased a four-story building at the northwest corner of South Geddes and West Fayette street. It was in this building that the Franklin industry was housed 7 years ago in the days of its infancy, when fire destroyed all of the work that was being done on the first models.

Doings in the Capital—The Motor Sales Co. is about to open a salesroom at 811 Seventeenth street, N. W., Washington, D. C., and will handle the Herreshoff. The White Co. has leased for a term of years the building at 1124 Connecticut avenue, and will open a branch office and salesroom as soon as improvements to the building have been completed. W. B. McBurney, formerly with the Matheson Automobile Co., has been appointed sales manager of the Pope Automobile Co. This company handles the Matheson, Pope-Hartford, Oldsmobile, Autocar and Waverley electric in the capital.

Adds the Herreshoff—The Stoyle-Vogel Co., Broad and Race streets, Philadelphia, which handles the American car in the Quaker City, has just added the Herreshoff to its line.

Rainier Cuts In—Philadelphia's colony will witness the advent of the Rainier agency during the coming week, K. Nepfel now having a large force of men engaged in remodeling 336-338 North Broad street for that purpose.

Handling the Haynes—James H. Johnson & Sons, under the name of the Haynes Automobile Co., of Pennsylvania, have opened quarters at 211-213 North Broad street, Philadelphia. The new concern will handle the various Haynes models.

Big Plant for Smith—A big factory for motor cars will be erected in Milwaukee, Wis., during the summer by the A. O. the manufacture of frames and parts for Smith Co. The Smith company announces that it has purchased a large building site just north of the Milwaukee city limits, bounded by Keefe avenue, Twenty-seventh and Thirtieth streets, and will build immediately an immense plant. The factory building will have dimensions of 800 by 275 feet. The power plant will be 40 by 60 feet in size, and the offices will be housed in an ornamental structure of 125 by 50 feet dimensions. The buildings will be of reinforced concrete construction, fireproof throughout, and of the most modern type. The factory will be one-story high. The Milwaukee road tracks run alongside. Eight hundred men are employed in the present plant at Clinton street and Park avenue. The force will be increased gradually until it reaches 3,000, the capacity of the new plant. The production will be increased at least threefold. The Smith company has orders for frames as far ahead as for 1914 models, and is handicapped by lack of room. The investment will amount to $500,000.

Picard Out; Weber In—Paul Picard has resigned as manager of the Palmer & Singer Chicago branch. He has been succeeded by Orlando F. Weber, formerly Chicago representative of the Pope and later promoting a motor livery business.

New Columbus Concern—The Motor Supply Co., of Columbus, was incorporated recently with a capital of $10,000 by N. G. McCartner, Edwin L. Kincaid, W. V. Crowe, C. R. Higgason and Edward C. Turner.

Dealer Loses His Life—Alfred E. Kennedy, president of the Beaver Valley Automobile Co., of Beaver City, Neb., lost his life when he attempted to save his wife from a fire resulting from an explosion of an oil can which Mrs. Kennedy held in her hand. Mrs. Kennedy was literally burned from head to foot and died almost immediately after the explosion. Mr. Kennedy was so frightfully burned that he died a few hours after his wife passed away.

Rutenber Plant Increasing—On account of the increasing business in Rutenber motors, the Western Motor Co., of Logansport, Ind., is building an additional factory at Marion, Ind. The new factory is to be 450 feet long, 66 feet wide and two stories high. It is made by the Kahn system of reinforced concrete. The new structure will have the machine shops on the second floor, the assembling rooms, the testing rooms and the offices on the first floor. It will be attractive in appearance and will be equipped with the best modern machinery. There will be 60,000 feet of floor space devoted entirely to the manufacturing of gasoline motors. The large foundry of the company, situated at Logansport, in connection with its factory at that point, will supply the castings for both factories. The new plant is to be in operation in September and will be devot-

ed to making one of the three types of four-cylinder motors now made at Logansport.

Handling the White—O. D. Bennett has taken the agency for the White steamer, at Sioux City, Iowa, and opened a modern garage at 414 Water street. He will carry on a storage and repair business under the name of the Providence garage.

Van Sicklen Resigns—Norton H. Van Sicklen, formerly publisher of Motor Age and since the first of the year manager of the Chicago Knox branch, has resigned the latter position. From now until after the Cobe cup race Mr. Van Sicklen will devote his time to superintending the construction of the course.

Hoosier Row Grows—Indianapolis dealers are still adding to their lines, despite the fact that the season is well advanced. The Indianapolis Automobile Co. which handles the Cartercar, has taken the Brush; the Wagner-Porteus Co. has just added the Browniekar agency, while the Cole is a new one with the Sterling Motor Car Co.

Davis Company Keeps Growing—The increase of the capital stock of the Davis Mfg. Co., of Milwaukee Wis., from $50,000 to $100,000 is to keep pace with the growth of the business. Last fall a new shop 100 by 150 feet, of brick and concrete, was erected and sufficient property has been purchased so that the company will be able to add shops, which will increase its floor space to three times the present size.

New Cleveland Concern—The Muehlhauser Machine Co. has been recently incorporated at Columbus, taking over the plant of the Machinery Forging Co., of this city. It is already turning out the first of its cars, a two-cycle machine known as the Hinescar rated at 35 horsepower. M. W. Muelhauser is president and general manager of the company. Mr. Muelhauser has been connected with the motor industry in one way or another for many years, having been with the Winton and Royal companies, of Cleveland, years ago.

Injunction Granted—The Turner Brass Works and Ray W. Harroun, of Chicago, have been granted an injunction restraining the Appliance Mfg. Co. from making the Harroun bumper. The defense admitted the infringement upon the Harroun patents but claimed the idea was not patentable. Judge Kohlsaat of the United States circuit court held that "the economy hit upon in substituting the eye-bolt as a guide in place of the ordinary bolt employed in securing the forward end of the spring to the car frame; the location and arrangement of the rail support; the double guide for the sliding rods which carry the rail, together with the method of their adjustment; the resilient cushioning means and the devices for making rigid and laterally movable the rail, all form a combination which is new. Taking into consideration the disclosures of the analagous arts, the invention must be held to be narrow but sufficiently broad, however, to entitle the complainant to the injunctional relief for which he prays.

Strong Company Moves—The Strong Motor Car Co., of Des Moines, Ia., has moved into its new garage at 917 Grand avenue, which is finished in mission style. The company has taken, in addition to its old line, the agencies for the Winton and Sterling.

Piggins Will Make Cars—Piggins Brothers, of Racine, Wis., builders of motors and of cars on a small scale, are planning to make an entrance into the field of manufacturing complete cars extensively and also add to their facilities for the production of the Piggins engine.

Knox Has the Peerless—George D. Knox, of Hartford, Conn., has completed arrangements with the Peerless Motor Car Co. for the direct representation of the Peerless car in Hartford, Middlesex and Tolland counties. Mr. Knox recently secured the Ashwell garage on Trumbull street.

Cleveland Happenings—The Knox line has been taken on in Cleveland by C. E. Marcellus and R. P. Flower, with offices at 711 Citizens' building. Cleveland's rapidly expanding row has been filled out by the addition of the Sterling, the Egensparger Motor Car Co. preparing to move from its East End location to the heart of the city. The new Hudson will be sold in Cleveland by Charles B. Shanks, at present agent for Chalmers-Detroit and Stearns cars.

Chalfant Changes—Edward P. Chalfant has resigned as manager of the Association of Licensed Automobile Manufacturers to join the forces of the Packard Motor Car Co., of Detroit. This is the second time within a short period that a manager of the A. L. A. M. has retired from that association to become associated with the Packard company, the other being M. J. Budlong, who is now president of the Packard Motor Co. of New York. Mr. Chalfant will be located at the factory in Detroit, where he will assist General Manager S. D. Waldon and President H. B. Joy in the executive work of the company.

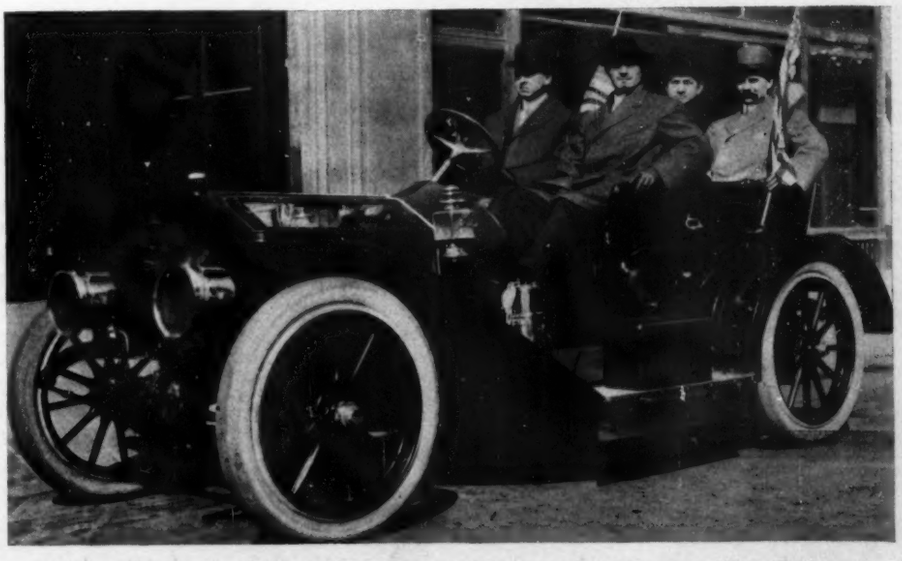
Hoyt People Move—On account of their rapidly increasing business the Hoyt Electrical Instrument Works have found it necessary to secure more room for their New York office, and so have removed to 136 Liberty street.

Morris Made Manager—E. Mack Morris, formerly assistant secretary of the Northern Motor Car Co. and later in the E-M-F sales department, has been made general manager of the Model Automobile Co., of Peru, Ind., manufacturer of the Great Western.

Lecture on the Franklin—Before the Science Club of Cortland, N. Y., a streopticon lecture was recently given in the society's headquarters in the Public Library building in that city, the subject, "The Development of the Motor Car as Exemplified by the Franklin," being presented by Assistant Advertising Manager John N. Alsever of the H. H. Franklin Mfg. Co.

Metzger's New Venture—William E. Metzger, formerly of the Everitt-Metzger-Flanders Co., has purchased an interest in the Seaton spring wheel. The American Spring Wheel Co. has been organized to make the wheel in this country and the International Spring Wheel Co. has been incorporated to handle the foreign patents. H. L. Olmstead has been named as engineer of the American company.

Prosperity at Waukesha—Following the reorganization of the Waukesha Motor Co., of Waukesha, Wis., and an increase of the capital stock from $25,000 to $100,000, a new factory plant will be erected with a total floor space of 10,000 square feet. Plans are being drawn for a one-story building, 100 by 100 feet, with saw-tooth roof. The annual capacity will be 1,500 to 2,000 motors. S. A. Perkins was elected president; Fred Ahrens, vice president; Harry Horning, secretary and treasurer; Fred Ahrens, superintendent.



GLASS-HOODED CAR USED TO DEMONSTRATE STROMBERG CARBURETER IN NEW YORK

News from the Motor Clubs

Will Tour in Iceland—Ernest Knabe, Jr., treasurer of the Automobile Club of Maryland, accompanied by Mrs. Knabe, will leave early in June for a tour of Europe. Later they will go to Iceland.

Club at Spartanburg—Spartanburg, S. C., has formed a motor club. The following have been elected to serve on the board: V. M. Montgomery, president; Fred L. Bryant, vice president; Charles M. Henry, secretary; A. H. Law, treasurer. The officers, with the following, will constitute the board of governors: Horace L. Bomar, J. B. Lee and Aug. W. Smith.

Omaha Club Seeks Home—The Omaha Automobile Club, of Omaha, Neb., is planning a new home for its members. No location has yet been secured, but it is thought a suite of rooms will be secured near Twenty-second and Farnam streets, just on the west end of motor row. As soon as the rooms are secured and fitted up an active campaign will be started for new members.

Denver Chooses June 5—The Denver Motor Club has arranged to observe orphans' day on Saturday, June 5. All members of the club have been requested to furnish their cars on this day from 12 to 2 o'clock and all the institutions in the city have been invited to supply the children. A tour of the boulevard system will be made, the children will be given unlimited quantities of peanuts and popcorn, while a corps of buglers will enliven the occasion.

Hartford Club's Program—The Automobile Club of Hartford, Conn., will depart from the beaten path this season in the way of activities. The latter part of June a sheep bake will be held at Lake Compounce, a resort noted for excellent cuisine. The Hartford contingent will proceed to Compounce in a long procession, and it is the intention to make the occasion a merry one. The orphans' day run will be held Saturday of this week. A house warming will take place when the new quarters are opened in the Allyn house, which probably will be the first of July.

Using European Signs—The Automobile Club of Hartford, of Hartford, Conn., claims to be the first club in the United States to make use of the symbol signs prevailing on the continent and used by the various motoring organizations of Europe. On the Hartford-Middletown turnpike there is one dangerous S turn which has been duly posted with the appropriate symbol and further on a bad railroad crossing is encountered which has likewise been looked to. In the city one of the danger points has also been posted. No words or sentences are necessary to convey the desired information and one with a little common sense readily comprehends their significance. More of these signs will be erected during the coming summer.

Club at Ogden—Seventy-five motorists of Ogden, Utah, have formed the Ogden Automobile Club and elected the following officers: Chairman, Judge J. A. Howell; secretary, Roy R. Reynolds; treasurer, H. J. Peery. The club will co-operate with the Good Roads Association toward securing better highways.

State Association Planned—Plans are being prepared and discussed for the formation of a state association of Wyoming. As soon as it is formed application will be made to the A. A. A. for admission to that organization. The Cheyenne club also voted to make a run to Laramie next Sunday. Work will begin at once to place road signs throughout the county and owners in adjoining counties will be asked to do likewise.

Protection Tag Designed—The Columbus Automobile Club, of Columbus, O., has designed what is styled a protection tag to be distributed soon to its members. The tag, which will be bolted on the radiator, will have the inscription: "Owner has full privileges and protection of the Columbus Automobile Club and the club offers a standing reward for the arrest and conviction of anyone tampering with or stealing from this motor car."

Club at Walla Walla—An organization, to be known as the Walla Walla Auto Club, has been formed at Walla Walla, Wash., with the following officers: Dr. E. E. Shaw, president; J. H. Morrow, vice president; T. J. Drumheller, secretary, and W. W. Baker, treasurer. The object of the club will be the promotion of good roads and social features for the members. About forty signed the charter roll. The club will also build a bungalow on the Walla Walla within the next year, where the members can enjoy luncheons, trout fishing, dancing and other amusements.

Help for the Children—The Quaker City Motor Club having unsuccessfully endeavored to induce the turnpike company owning the road from Philadelphia to Willow Grove to allow the cars carrying the children in the orphans' day run, on June 9, to pass to and from the park free of toll charges, the Evening Times stepped into the breach and announced its willingness to look after that end of the expense account. The North American followed with an offer, which was accepted, to provide all the necessary eatables. The other local sheets show an inclination to help out in any way they can, and now that the members of the club, and motorists generally, are offering their cars in great numbers, Chairman Lewis is looking for such a big turnout on Wednesday next as will totally eclipse the combined efforts of former years.

Columbus on the Job—Arrangements for the annual orphans' outing to be given by the Columbus Automobile Club at the grounds of the Columbus Country Club, Saturday, June 19, are progressing rapidly. It is expected that fully 2,000 children will be the guests of the club. The start will be made at the corner of Broad and High streets at 8 a.m. In addition to the dinner to be served at noon, a luncheon will be given the children in the evening before they are taken to their homes, either with their parents or at public institutions where they are housed.

Salt Lake Election—At a meeting of the Automobile Club of Utah the following directors were elected: One-year term, C. A. Quigley and J. E. Jennings, Salt Lake City; C. J. Humphris, Ogden; E. P. Bacon, Logan; 2-year term, Samuel Newhouse, Frank J. Westcott and O. W. Powers, Salt Lake; M. S. Browning, Ogden; E. S. Russner, Provo. This is regarded as a victory for the club ticket, which means that the project for a new speedway to Saltair Beach will be carried out. The directors will appoint officers of the club and name the various committees at a future meeting.

Ride for the Solons—The Madison Automobile Club's legislative tour was held on Wednesday, having been postponed from May 26 by rain. Nearly every member of the Wisconsin legislature accepted the courtesy extended by the club and spent the afternoon in seeing the beauties of the state capital. About forty machines were used. Recently James T. Drought, counsel and secretary of the Wisconsin State A. A., Milwaukee, took a party of assemblymen, including Speaker L. H. Bancroft, to Richland Center, the speaker's home, for an over-Sunday visit, incidentally extolling the laws fathered by the association now before the legislature.

Ithacans Enthusiasts—The recently organized Automobile Club of Ithaca, N. Y., held a smoker recently. Sixty of the seventy-seven members were present. The New York State Automobile Association cards were distributed at that time. According to records kept by Bert Van Tuyle, secretary of the state association, Ithaca has more members for a city of its size than any other club in the state. The charter officers are as follows: T. W. Mone, president; D. Rothschild, vice president; E. N. Jackson, treasurer; J. A. Causer, secretary, who together with R. A. Heggie, D. E. March and C. W. Fletcher, constitute the board of governors.

Brief Business Announcements

Omaha, Neb.—The H. E. Frederickson Automobile Co. has taken the agency for the Fritchle electric.

Columbus, Wis.—Ernest Jones has opened an agency for the Kisselkar and the Maxwell in the Jackson building.

East Orange, N. J.—Earl Klick, who has been connected with the Rickey Machine Co., of this city, is now in the employ of the Simplex Automobile Co., of New York.

Milwaukee, Wis.—A charter has been granted to the Taxicab Livery Co. The capital stock is $25,000 and the promoters are M. L. Henderson, David I. Rowe and Martin Christiansen.

Pittsburg, Pa.—The Auto Trading Co. is shortly to make application for a charter. The company is to engage in the manufacture, buying, selling and repairing of motor cars and similar vehicles.

Manitowoc, Wis.—Frick & Collier have opened a garage and agency in the Cizek building, handling the Ford. It is planned to establish a livery service and also make daily trips between Manitowoc and Two Rivers.

Savannah, Ga.—Charles P. Henderson & Co., who have been appointed general southern agents for the Reo, have opened temporary offices at 119 State street, to be occupied until the completion of the new building.

Augusta, Me.—Articles of incorporation have been filed by the Cooke, Fitz & Dillingham Co., of Portland. The company is to have a capital stock of $25,000 and will engage in the manufacture and sale of motor cars. C. E. Eaton is the president and T. L. Croteau the treasurer.

Philadelphia, Pa.—Application is to be made on June 7 for a charter for a new corporation to be known as H. Kaiser & Co., Inc. The new company is to deal in and manufacture motor cars, trucks, wagons and vehicles of every kind and description, as well as accessories of all kinds.

Escanaba, Mich.—The Escanaba Business Men's Association is considering a proposition from D. C. Denison, president of the Denison Motor Co., to establish a factory for the manufacture of trucks in this city. Mr. Denison asks that Escanaba men subscribe for $50,000 of the $200,000 capitalization.

Rochester, N. Y.—On June 1 the Lutweiler Pumping Engine Co., formerly of Los Angeles, Cal., commenced operations in the plant on Ames street which was formerly occupied by the American Laundry Machine Co. The new company has a capital stock of $1,000,000 and is to manufacture a motor car fire engine. Samuel B. Williams and W. C. Smith are associated with L. W. Lutweiler in the new enterprise.

Viroqua, Wis.—Charles S. Slack & Co. have been appointed district agents for the International.

New York—The Automobile Co-Operative Association has leased the store at 220 West Twenty-seventh street for a term of years.

Lansing, Mich.—The Homer Auto Truck Co., of Homer, announces the change of name to the Homer Gas Engine Co. The concern has a capital stock of $25,000.

Antigo, Wis.—George W. Betters and Otto Molle have opened a garage and salesroom at 629 Edison street. Mr. Bettes comes from Grand Rapids, Mich.

Birmingham, Ala.—Attorneys Tomlinson and McCullough have filed a petition in the United States court seeking to place the Automobile Livery Service Co. in involuntary bankruptcy.

New York—A change has been made in the Cameron Car Co. In the future the general offices of the concern are to be located at the factory in Beverley, Mass., instead of in this city, and the Cameron Car Co., maker, and the Cameron Motor Co., selling agent, have combined into a new corporation with a capital stock of half a million. The plant in New London is to be retained.

RECENT INCORPORATIONS

Buffalo, N. Y.—Buffalo Taxicab Co., capital stock $200,000, to manufacture, sell and rent motor cars, as well as operating a livery and garage; incorporators, W. B. Ford, S. S. Olds, Jr., and W. A. Morgan.

Freeport, N. Y.—Freeport Taxicab Co., capital stock $1,000; directors, W. G. Smith, Jacob Post and Jessie E. Post.

New York—Mutual Automobile Association of New York city, capital stock $50,000, to manufacture motor vehicles; incorporators, F. Haasters, G. L. Clarke and O. B. Bachmann.

New York—Auto-Appliance Mfg. Co., capital stock $25,000, to engage in the manufacture of shock absorbers for motor cars; incorporators, W. J. Singer, J. W. Lowell and J. L. Douglass.

South Bend, Ind.—Twentieth Century Motor Car and Supply Co., capital stock $60,000, to engage in the manufacture of motor cars; incorporators, M. L. Williams, H. E. Keyer and H. L. Wolverton.

Richmond, Va.—Hicks Automobile Co., capital stock from $2,000 to $15,000, to do a general motor car business; Thomas B. Hicks, Sr., is to be the president, and M. Hicks, secretary and treasurer.

Atlantic City, N. J.—States Garage Corporation, capital stock $5,000, to do a general garage business.

Newark, N. J.—Central Garage Co., capital stock $10,000, to do a general motor car business; incorporators, David Wylie, John Swan and Louis F. Aldiz.

Marion, Ind.—Custer Mfg. Co., capital stock $12,000, to engage in the manufacture of motor cars; Angela G. Custer, Burr Custer, L. A. Pickett, George D. and Robert J. Custer are named as the directors.

Sterling, Colo.—Sterling Garage Co., capital stock $10,000; incorporators, O. P. Sells, J. E. Rogers and F. Shahan.

Falls City, Neb.—The McGuire & Schmelzel Auto Co. has taken the agency for the Regal, Hupmobile and Inter-State.

Green Bay, Wis.—The Lucia Cycle Co. garage and agency, has installed a charging station for electric cars, with a capacity of six.

Chicago—The Hinsdale Electrical Supply Co. has just closed a contract with the Omar Motor Co., of Newark, N. J., for the agency of the Browniekars for the state of Illinois.

Seattle, Wash.—Seattle now has twenty-four taxicabs in service and it is planned to increase this number by six or eight more cars just as soon as they can be shipped here.

New York—In the future the Batavia tire is to have a representative in this city. Headquarters have been established at 1906 Broadway under the management of Harry L. Graff.

Orange, Tex.—Plans have been filed for the erection of a one-story brick garage, 100 by 100 feet, to be located on Front street. The new building has been leased by M. V. Anderson & Co.

Waterville, Me.—N. F. Stanley, who has a garage on Union street, is considering the advisability of erecting a new garage in the rear of the Elmwood hotel, from which the building was recently removed.

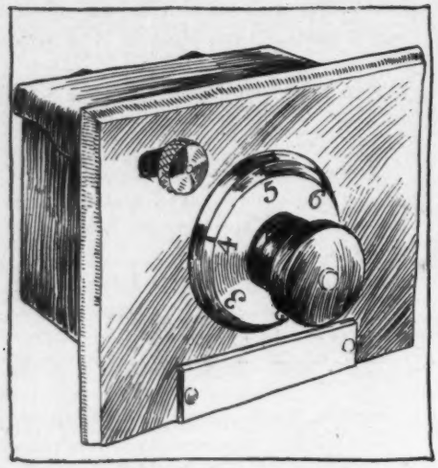
Chicago—At a meeting of the Automobile Maintenance Co. it was voted to change the name of the concern to the Automobile Maintenance and Mfg. Co. and also to increase the capital stock to $30,000.

Omaha, Neb.—W. A. Peck has assumed charge of the motor car department of the Drummond Carriage and Automobile Co. Mr. Peck was formerly western salesman for a well-known carriage and hearse builder of Rochester, N. Y.

Fond du Lac, Wis.—M. M. Anderson has been appointed manager of the Travelers' Home garage. The garage is one of the largest in Wisconsin and is owned by the Anderson Vehicle Co., of Fond du Lac, Wis., which has embarked in the motor car business on an extensive scale. The formal opening was held on May 31.

Poughkeepsie, N. Y.—Though the transfer has not yet been made, it is quite certain that the Adriance building on North Water street will be taken over by the American Oil Engine Co. The company is now located in Connecticut and is engaged in the manufacture of stationary, marine and motor car engines in which kerosene oil is used.

Development Briefs



BALLENGER LOCK SWITCH

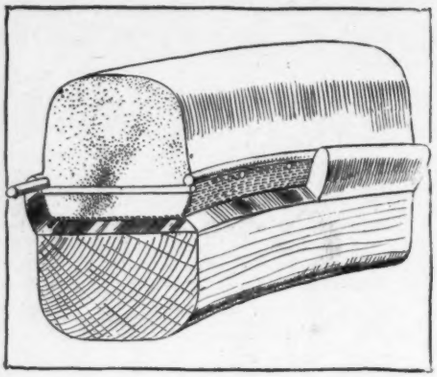
Ballenger Lock Switch

THE W. T. Ballenger Mfg. Co., Indianapolis, Ind., manufactures a combination lock switch, which is used in connection with the ignition system of a car, its locking consisting in breaking the circuit. It can be used with any double ignition system where two sets of plugs and two sources of current are made use of. The switch may be placed in any convenient location, in case of magneto only on the dash; or if batteries, on the dash or in front under the seat. It is a combination lock, the rotating knob being in the center of a regularly-spaced dial so that any desired combination can be selected and used.

Patterson Touring Cars

W. A. Patterson & Co., Flint, Mich, a recent entry in the motor-car field, is bringing out a four-cylinder car with 4 by 4-inch cylinders. The car is fitted with five-passenger touring body, toy tonneau, or four-passenger tourabout body. It has a wheelbase of 104 inches, takes 32 by 3½-inch tires, and has the usual equipment. The motor is of the conventional four-cycle type, cooled by thermo-syphon circulation with dual ignition, comprising magneto and dry cells. A cone clutch is carried in the flywheel; speed variations are through a three-speed selective set; final drive is by shaft with two universal joints; and braking rests with internal and external brakes on rear wheels.

AJAX NON-SKID TIRE



FIRESTONE MOTOR BUGGY TIRE

Convertible Lights

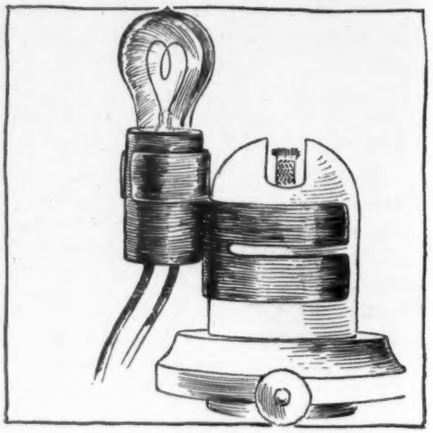
The Beckley-Ralston Co., Chicago, is marketing an attachment for converting oil side lights to electric types, by a device known as the Fitz-All electrifier. In brief, it consists of a double spring, brass tipped, which fits the burner firmly and is equipped with a wire socket ready to be spliced to the battery wire or switch. With this article the oil burner has not to be removed, and should at any time anything happen to the electric light the oil lamp exists intact.

King Leather Tire

The King Leather Tire Co., Milwaukee, Wis., manufactures the King leather tire which is manufactured under patents. This tire bears considerable resemblance to pneumatics in that the foundation part of it consists of successive laps of rubber filled with heavy fabric coated with an inner surface of rubber to protect the inner tube. Outside of the fabric is a covering of chrome leather which is in turn reinforced by a number of rows of heavy steel studding on the tread.

New Herz Specialties

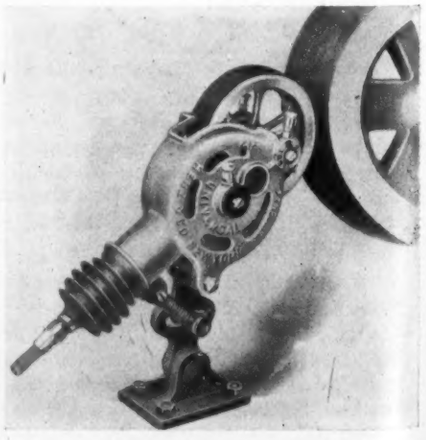
Herz & Co., New York, have brought four new specialties, namely, a roller timer, a new contact, new tandem tire pump, and new universal pump. The universal pump, illustrated, is a single-cylinder, air-cooled type, carried on a special bracket and driven by friction from the flywheel. The pump has 2⅛-inch stroke and 1⅜-inch piston diameter. Complete it measures 13½ inches in length and weighs 11 pounds. The piston uses two cast iron rings and has not any leather packing. When not in use the pump is lifted free from the flywheel. The tandem pump differs from the universal in that it does not attach to the car but is held against the flywheel and driven from it through a friction pulley. In the Herz roller-type timer contact is made by a roller which rolls over the surfaces of the stationary contact. The revolving part is carried on two races of ball bearings. Insulation is hard vulcan fiber. The object of having the roller bear upon the contact is to avoid any possibility of wear. The new contact is a split thimble attached to the wire, which is pressed into a cylindrical opening in a contact piece carried on the spark plug or other parts.



THE FITZ-ALL ELECTRIFIER

Firestone Motor Buggy Tire

The Firestone Tire & Rubber Co., Akron, O., is marketing a special design of solid rubber tires for motor buggies, which differs from its previous types in having a flatter top and greater width above the base. The tire is anchored in the rim channel by means of side wire fasteners in conjunction with transverse bolts through the tire. The object of the flat top is to give increase traction and to allow for a more nearly normal shape under load.



HERZ POWER TIRE PUMP